SITE DEVELOPMENT PLANS
PREPARED FOR
NORTHERN PASS TRANSMISSION, LLC
PROPOSED DEERFIELD SUBSTATION EXPANSION

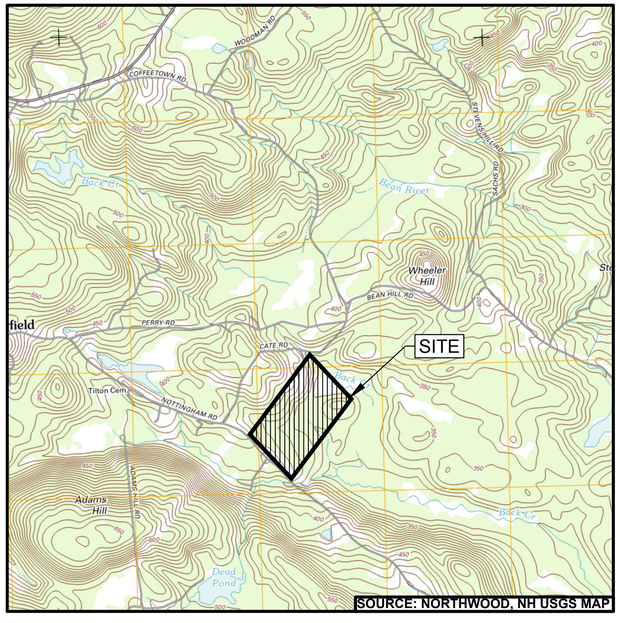
CATE ROAD, DEERFIELD, NH 03037

OWNER:

THE NORTHERN PASS

ENGINEER:

BURNS McDONNELL



VICINITY MAP

0 2000' 4000'

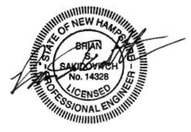
SCALE IN FEET

OCTOBER 1, 2015

FOR PERMITTING PURPOSES ONLY NOT FOR CONSTRUCTION

DRAWING	DESCRIPTION
CVR	COVER SHEET
G001	GENERAL NOTES AND LEGEND
C100	SITE LAYOUT PLAN
C101	GRADING PLAN
C102	EROSION AND SEDIMENTATION CONTROL PLAN
C103	PLANTING PLAN
C104	STORMWATER SYSTEM PLAN
C200	ACCESS ROAD PROFILE
C300	SITE CROSS SECTIONS
C500	EROSION AND SEDIMENTATION CONTROL NOTES
C501	EROSION AND SEDIMENTATION CONTROL DETAILS
C502	EROSION AND SEDIMENTATION CONTROL DETAILS
C503	CONSTRUCTION DETAILS
C504	CONSTRUCTION DETAILS
C505	CONSTRUCTION DETAILS
C506	CONSTRUCTION DETAILS
C507	CONSTRUCTION DETAILS
C508	CONSTRUCTION DETAILS
C509	CONSTRUCTION DETAILS

NEW HAMPSHIRE STATE LAW REQUIRES HOMEOWNERS AND CONTRACTORS TO CONTACT DIG SAFE, BY DIALING 8-1-1 AT LEAST THREE BUSINESS DAYS BEFORE BEGINNING ANY DIGGING OR EXCAVATION PROJECT. WHEN DIG SAFE RECEIVES A CALL, THE HOMEOWNER OR CONTRACTOR MUST WAIT 72 BUSINESS HOURS. DURING THIS TIME, UTILITY REPRESENTATIVES RESPOND TO MARK THEIR LINES WITHIN YOUR PRE-MARKED AREA. ALL INFORMATION REGARDING DIG SAFE RULES AND REGULATIONS CAN ALSO BE FOUND AT www.digsafe.com.



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Oct 5 2015

NO.	REVISION	DATE	DRWN	ChkD	APPRV.
1	ISSUED FOR PERMITTING	10/1/15	FP	RLR	BSS

THE NORTHERN PASS

Transmission Business

DEERFIELD SUBSTATION
COVER SHEET

DATE: 10/1/2015

SCALE: NTS

DES: LRM	CHK: RLR
DRW: FP	APR: BSS

TOWN: DEERFIELD, NH

TRANSMISSION LINE:

MILE NO:

SHEET 1 OF 19

NPTT601-CVR

REVISION: 11/10/2013

\\BMCD\DFS\CLIENTS\TND\NUSC\58466_NPT\DESIGN\SUBSTATION\600-DEERFIELD\CADD\CIVIL-SITE\NPTT601-CVR.DWG 10/5/2015 8:01 AM KAMARX

BACKGROUND NOTES:

1. BACKGROUND INFORMATION TAKEN FROM "EXISTING CONDITIONS PLAN" FOR DEERFIELD STATION, OFF CATE ROAD, DEERFIELD, NH. PREPARED BY CHA, CONSULTING, INC. DATED DECEMBER 2, 2013. LAST REVISED SEPTEMBER 23, 2014. SURFACE OBSERVABLE INFORMATION AND CONTOURS SHOWN WITHIN THE LIMITS OF GROUND SURVEY AREA, IS THE RESULT OF AN ON-THE-GROUND SURVEY PERFORMED BY CHA, CONSULTING INC. ON OR BETWEEN OCTOBER 16, 2013 AND AUGUST, 2014. ALL OTHER CONTOURS SHOWN HEREON ARE THE RESULT OF LIDAR DATA PROVIDED BY GEODIGITAL INTERNATIONAL CORP. AND BASED ON NOVEMBER 2010 DATA COMPILATION.
2. ELEVATIONS, CONTOURS AND BENCHMARKS ARE BASED ON NAVD 1988 VERTICAL DATUM.
3. HORIZONTAL LOCATIONS ARE BASED ON NEW HAMPSHIRE STATE PLANE COORDINATE SYSTEM NAD 83.
4. WETLAND FLAGS SHOWN HEREON WERE PROVIDED BY NORMANDEAU, DELINEATED BY NORMANDEAU IN JULY OF 2010.
5. THE SITE IS LOCATED WITHIN ZONE 'X' FLOOD ZONE AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN AND WITHIN ZONE 'A', SPECIAL AREA SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD, NO FLOOD ELEVATIONS DETERMINED ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP NUMBER 33015C0095E PANEL 95 OF 1300, ROCKINGHAM COUNTY, NH, DATED MAY 17, 2005.
6. PROPERTY AREA = 62.98 ACRES, NPDES/LIMIT OF DISTURBANCE (LOD) AREA TOTAL = 8.40 ACRES.

GENERAL NOTES:

1. GENERAL NOTES SHALL APPLY TO THE SITE DEVELOPMENT PLANS THROUGHOUT. REFER TO INDIVIDUAL SHEETS FOR SHEET SPECIFIC NOTES.
2. CONTRACTOR(S) TO TAKE AND VERIFY ALL DIMENSIONS AND CONDITIONS OF THE WORK AND BE RESPONSIBLE FOR COORDINATION OF SAME. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO START OF WORK.
3. ENGINEER ASSUMES NO RESPONSIBILITY AS TO THE CONTENT OF THE EXISTING CONDITIONS PLAN INCLUDING BUT NOT LIMITED TO LOCATION, SIZE, AND ELEVATIONS OF UTILITIES AND STRUCTURES NOT VISIBLE AND WHERE TAKEN FROM PLANS BY OTHERS.
4. EXISTING CONDITIONS SURVEY INFORMATION ON EXISTING UTILITIES AND STORM DRAINAGE SYSTEMS HAS BEEN COMPILED FROM AVAILABLE INFORMATION INCLUDING UTILITY COMPANY AND MUNICIPAL RECORD MAPS AND/OR FIELD SURVEY AND IS NOT GUARANTEED CORRECT OR COMPLETE. UTILITIES AND STORM DRAINAGE SYSTEMS ARE SHOWN TO ALERT THE CONTRACTOR TO THEIR PRESENCE AND THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ACTUAL LOCATIONS AND ELEVATIONS OF ALL UTILITIES AND STORM DRAINAGE SYSTEMS INCLUDING SERVICES. PRIOR TO DEMOLITION OR CONSTRUCTION, THE CONTRACTOR SHALL CONTACT “DIGSAFE” PRIOR TO COMMENCEMENT OF WORK AT “811” AND VERIFY ALL UTILITY AND STORM DRAINAGE SYSTEM LOCATIONS.
5. THE CONTRACTOR SHALL VERIFY ALL EXISTING SITE AND BUILDING CONDITIONS IN THE FIELD AND CONTACT THE OWNER AND ENGINEER IF THERE ARE ANY QUESTIONS AND/OR CONFLICTS REGARDING THE SITE DEVELOPMENT PLANS AND/OR EXISTING FIELD CONDITIONS PRIOR TO CONSTRUCTION. REFER TO THE PROJECT SPECIFICATIONS MANUAL FOR ADDITIONAL INFORMATION. SHOULD ANY UNCHARTED OR INCORRECTLY CHARTED, EXISTING PIPING OR OTHER UTILITY BE UNCOVERED DURING EXCAVATION, INFORM THE OWNER AND CONSULT THE CIVIL ENGINEER IMMEDIATELY FOR DIRECTIONS BEFORE PROCEEDING FURTHER WITH WORK IN THIS AREA.
6. ALL CONSTRUCTION SHALL COMPLY WITH PROJECT SPECIFICATION MANUAL, EVERSOURCE STANDARDS AND SPECIFICATIONS, AND THESE PLANS. IF SPECIFICATIONS ARE IN CONFLICT, THE MORE STRINGENT SPECIFICATION SHALL APPLY. ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE OSHA, FEDERAL, STATE AND LOCAL REGULATIONS. INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
   a. NEW HAMPSHIRE STORMWATER MANUAL, VOLUMES 1, 2 & 3, DECEMBER 2008.
   b. NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION MANUAL ON DRAINAGE DESIGN FOR HIGHWAYS, REVISION DATE APRIL 1998.
   c. NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION STANDARD PLANS AND SPECIFICATIONS (2010).
   d. EVERSOURCE BEST MANAGEMENT PRACTICES MANUAL (TO BE FURTHER DEVELOPED).
   e. EVERSOURCE STANDARD SPECIFICATIONS (10-24-2014).
7. DO NOT INTERRUPT EXISTING SERVICING UTILITIES AND FACILITIES OCCUPIED AND USED BY THE OWNER OR OTHERS DURING OCCUPIED HOURS EXCEPT WHEN SUCH INTERRUPTIONS HAVE BEEN AUTHORIZED IN WRITING BY THE OWNER, THE LOCAL MUNICIPALITIES, THE UTILITY PROVIDER, AND ANY APPLICABLE REGULATORY AGENCY. INTERRUPTIONS SHALL ONLY OCCUR AFTER ACCEPTABLE TEMPORARY SERVICE HAS BEEN PROVIDED.
8. THE CONTRACTOR SHALL PROVIDE RECORD AS-BUILT DRAWINGS OF ALL CONSTRUCTION IN ACCORDANCE WITH OWNER AND REGULATORY AGENCY REQUIREMENTS (INCLUDING UNDERGROUND UTILITIES) TO THE OWNER AT THE END OF CONSTRUCTION.
9. WRITTEN DIMENSIONS HAVE PRECEDENCE OVER SCALED DIMENSIONS. THE CONTRACTOR SHALL USE CAUTION WHEN SCALING PLANS. IN CASE OF CONFLICT BETWEEN PLAN SET AND ANY OTHER DRAWING AND/OR SPECIFICATION, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY FOR CLARIFICATION.
10. IF A CONFLICT ARISES BETWEEN PLANS, SPECIFICATIONS, AND/OR DETAILS, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY FOR CLARIFICATION.
11. THE CONTRACTOR SHALL ABIDE BY ALL OSHA, FEDERAL, STATE, AND LOCAL REGULATIONS IN ALL INSTANCES AND WHEN OPERATING CRANES, BOOMS, HOISTS, ETC. IN CLOSE PROXIMITY TO OVERHEAD ELECTRIC LINES. IF CONTRACTOR MUST OPERATE EQUIPMENT CLOSE TO ELECTRIC LINES, CONTACT POWER COMPANY TO MAKE ARRANGEMENT FOR PROPER SAFEGUARDS. ANY UTILITY COMPANY FEES SHALL BE PAID FOR BY THE CONTRACTOR.
12. THE ENGINEER IS NOT RESPONSIBLE FOR SITE SAFETY MEASURES TO BE EMPLOYED DURING CONSTRUCTION. THE ENGINEER HAS NO CONTRACTUAL DUTY TO CONTROL THE SAFEST METHODS OR MEANS OF THE WORK, JOB SITE RESPONSIBILITIES, SUPERVISION OR TO SUPERVISE SAFETY AND DOES NOT VOLUNTARILY ASSUME ANY SUCH DUTY OR RESPONSIBILITY.
13. ALL NOTES AND DIMENSIONS DESIGNATED "TYPICAL" OR "(TYP.)" APPLY TO ALL LIKE OR SIMILAR CONDITIONS THROUGHOUT THE PROJECT.
14. ALTERNATIVE METHODS AND PRODUCTS OTHER THAN THOSE SPECIFIED MAY BE USED IF SUBMITTED, REVIEWED, AND APPROVED BY THE OWNER, ENGINEER, AND APPROPRIATE REGULATORY AGENCY PRIOR TO CONSTRUCTION.
15. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL PRODUCTS AND MATERIALS PER PLANS AND SPECIFICATIONS TO THE OWNER AND ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ORDERING, FABRICATION, OR DELIVERY TO THE SITE. FOR EACH SUBMITTAL, ALLOW A MINIMUM OF 14 WORKING DAYS FOR REVIEW.
16. THE CONTRACTOR SHALL RESTORE ANY DRAINAGE STRUCTURE, PIPE, UTILITY, PAVEMENT, CURBS, SIDEWALKS, LANDSCAPED AREAS OR SIGNAGE AND OTHER INCIDENTAL DISTURBANCES AND DAMAGES DURING CONSTRUCTION TO THEIR ORIGINAL CONDITION OR BETTER, AS APPROVED BY THE OWNER, ENGINEER AND REGULATORY AGENCY.
17. THE CONTRACTOR SHALL COMPLY WITH 29 CFR PART 1926 FOR EXCAVATION TRENCHING AND TRENCH PROTECTION REQUIREMENTS.
18. NO CONSTRUCTION OR DEMOLITION SHALL BEGIN UNTIL APPROVAL OF THE FINAL PLANS IS GRANTED BY ALL GOVERNING AND REGULATORY AGENCIES.
19. DEMOLITION OF EXISTING CONDITIONS INCLUDING BUT NOT LIMITED TO BUILDINGS, STRUCTURES, PAVEMENT, WELLS, SEPTIC, SANITARY SEWER, FENCES, TREES, ETC. SHALL BE PER THE DIRECTION OF EVERSOURCE AND SHALL BE IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS.
20. PERMANENT BENCHMARKS SHALL BE INSTALLED UPON COMPLETION OF CLEARING.
21. ELECTRICAL SUBSTATION COMPONENTS, UNDERGROUND TRANSMISSION LINES, OVER HEAD TRANSMISSION LINES AND THEIR FOUNDATIONS DEPICTED HEREIN ARE FOR REFERENCE ONLY.
22. ANY CLEARED AND EXCAVATED MATERIALS WHICH ARE SUSPECTED OF BEING ENVIRONMENTALLY POLLUTED, CONTAMINATED, OR IMPACTED SHALL BE STOCKPILED ON-SITE ON TOP OF POLYETHYLENE SHEETING AND COVERED WITH POLYETHYLENE SHEETING. THE OWNER AND ENGINEER SHALL BE IMMEDIATELY INFORMED UPON ENCOUNTERING THIS MATERIAL. STORAGE, TESTING, TREATMENT, REMOVAL, AND DISPOSAL OF ENVIRONMENTALLY POLLUTED, CONTAMINATED, OR IMPACTED MATERIAL SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS.
23. CONTRACTOR SHALL TAKE PRECAUTIONS TO ENSURE NO DISTURBANCE BEYOND THE DEPICTED LIMIT OF DISTURBANCE.
24. THE CONTRACTOR SHALL ESTABLISH BEST MANAGEMENT PRACTICES FOR BLASTING OF BEDROCK IN ACCORDANCE WITH THE NHDES PUBLICATION WD-10-12 “ROCK BLASTING AND WATER QUALITY MEASURES THAT CAN BE TAKEN TO PROTECT WATER QUALITY AND MITIGATE IMPACTS”, 2010. IF THE BLAST ROCK VOLUME GENERATED IS GREATER THAN 5,000 CUBIC YARDS, THE CONTRACTOR SHALL DEVELOP A GROUNDWATER MONITORING PROGRAM FOR SUBMISSION TO THE OWNER AND ENGINEER. BLASTING SHALL NOT COMMENCE UNTIL THESE REQUIREMENTS ARE APPROVED BY THE NHDES, AS REQUIRED.
25. PROPOSED STORM DRAINAGE SYSTEM SHALL BE HS-20 RATED.

EXISTING LEGEND

	PROPERTY LINE
	ADJOINING PROPERTY LINE
	RIGHT OF WAY LINE
	EASEMENT LINE
385	MAJOR CONTOUR
381	MINOR CONTOUR
	TREELINE
OHW	OVER HEAD WIRE
	STOCKADE FENCE
	CHAIN LINK FENCE
	WETLANDS LINE
	STREAM OR WATERWAY
	STONEWALL
WF600-9	WETLAND FLAG
IP	IRON PIPE
CB/DH	CONCRETE BOUND WITH DRILL HOLE
SB/DH	STONE BOUND WITH DRILL HOLE
	SURVEY CONTROL POINT
	UTILITY POLE
	WETLANDS

PROPOSED LEGEND

385	MAJOR CONTOUR
381	MINOR CONTOUR
	TREELINE
	PERIMETER FENCE
	GUIDERAIL
	SILT FENCE
	CONSTRUCTION FENCE
	LIMIT OF STONE SURFACING
LOD	LIMIT OF DISTURBANCE
	STORMWATER SWALE
UD	UNDERDRAIN
ST	FRENCH DRAIN
	STORM SEWER PIPE
	STORM INLET
	MANHOLE
	OUTLET CONTROL STRUCTURE
	INLET PROTECTION
	FLARED END SECTION
CO	CLEANOUT
380.50	SPOT ELEVATION
	RIP RAP
	WETLAND IMPACT AREA
	STONE SURFACING
	GRASS
UaD / UaC	NRCS SOIL TYPE/BOUNDARY

LIST OF ABBREVIATIONS

ACP	ASBESTOS CEMENT PIPE
APT	ANGLE POINT
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
BIT	BITUMINOUS CONCRETE
BLDG	BUILDING
BM	BENCH MARK
BW	BOTTOM OF WALL
CB	CATCH BASIN
CATV	CABLE TELEVISION
CI	CAST IRON PIPE
CIC	CAST IRON COVER
℄	CENTERLINE
CL	CENTERLINE
CLF	CHAIN LINK FENCE
CLR	CLEAR
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
CONC	CONCRETE
COR	CORNER
CTRS	CENTERS
DIA	DIAMETER
DMH	DRAINAGE MANHOLE
E	EASTING
EL	ELEVATION
EMH	ELECTRIC MANHOLE
EOP	EDGE OF PAVEMENT
EXP	EXPANSION
EXIST	EXISTING
G	GAS
GALV	GALVANIZED
GR	GRATE
HDPE	CORRUGATED HIGH DENSITY POLYETHYLENE PIPE
HT	HEIGHT
INV	INVERT
LBS	POUNDS
LF	LINEAR FOOT
LFC	LOW FLOW CHANNEL
LOD	LIMIT OF DISTURBANCE
MAX	MAXIMUM
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
N	NORTHING
NO	NUMBER
NOM	NOMINAL
OC	ON CENTER
OCS	OUTLET CONTROL STRUCTURE
OD	OUTSIDE DIMENSION
PC	POINT OF CURVATURE
PCC	POINT OF CONCENTRIC CURVATURE
POB	POINT OF BEGINNING
PI	POINT OF INTERSECTION
PIV	POST INDICATOR VALVE
PRC	POINT OF REVERSE CURVATURE
PSI	POUNDS PER SQUARE INCH
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE PIPE
R	RADIUS
RAD PT	RADIUS POINT
RCP	REINFORCED CONCRETE PIPE
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
SESC	SOIL EROSION AND SEDIMENT CONTROL
SS	SANITARY SEWER
SSMH	SANITARY SEWER MANHOLE
SSFM	SANITARY SEWER FORCE MAIN
SQ FT	SQUARE FOOT
SQ M	SQUARE METER
TYP	TYPICAL
TW	TOP OF WALL
UC	UNDERGROUND COMMUNICATION
UD	UNDERDRAIN
UE	UNDERGROUND ELECTRICAL
UP	UTILITY POLE
VC	VITRIFIED CLAY PIPE
W/O	WITHOUT

STATE OF NEW HAMPSHIRE – BRIAN K. SAKOWICH No. 14328 LICENSED PROFESSIONAL ENGINEER

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Oct 5 2015

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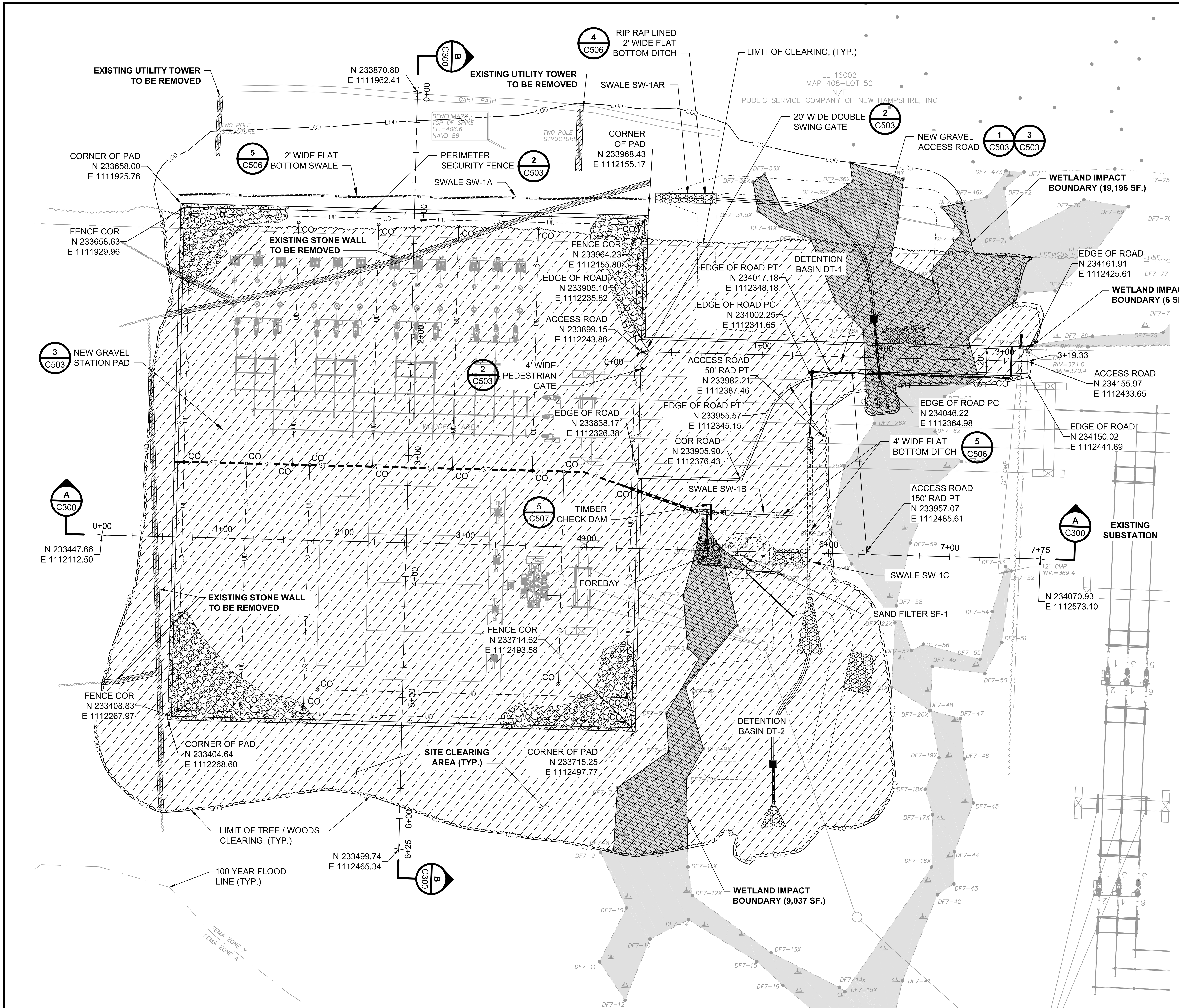
NO.	ISSUED FOR PERMITTING REVISION	DATE	DRWN	CHKD	APPRV
1		10/1/15	FP	RLR	BSS

THE NORTHERN PASS
Transmission Business

DEERFIELD SUBSTATION
GENERAL NOTES AND LEGEND

DATE: 10/1/2015
SCALE: NTS

DES: LRM | CHK: RLR
DRW: FP | APR: BSS
TOWN: DEERFIELD, NH
TRANSMISSION LINE:
MILE NO:
SHEET 2 OF 19
NPTT602-G001
REVISION: 11/10/2013


EXISTING UTILITY TOWER TO BE REMOVED
N 233870.80
E 1111962.41
B C300
EXISTING UTILITY TOWER TO BE REMOVED
4 C506
RIP RAP LINED 2' WIDE FLAT BOTTOM DITCH
LIMIT OF CLEARING, (TYP.)
SWALE SW-1AR
LL 16002
MAP 408–LOT 50
N/F
PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE, INC
CART PATH
BENCHMARK TOP OF SPIKE EL.=406.6 NAVD 88
TWO POLE STRUCTURE
20' WIDE DOUBLE SWING GATE
2 C503
NEW GRAVEL ACCESS ROAD
1 C503
3 C503
CORNER OF PAD
N 233658.00
E 1111925.76
5 C506
2' WIDE FLAT BOTTOM SWALE
PERIMETER SECURITY FENCE
2 C503
CORNER OF PAD
N 233968.43
E 1112155.17
SWALE SW-1A
WETLAND IMPACT BOUNDARY (19,196 SF.)
FENCE COR
N 233658.63
E 1111929.96
EXISTING STONE WALL TO BE REMOVED
FENCE COR
N 233964.23
E 1112155.80
EDGE OF ROAD
N 233905.10
E 1112235.82
EDGE OF ROAD PT
N 234017.18
E 1112348.18
DETENTION BASIN DT-1
EDGE OF ROAD
N 234161.91
E 1112425.61
WETLAND IMPACT BOUNDARY (6 SF.)
EDGE OF ROAD PC
N 234002.25
E 1112341.65
ACCESS ROAD
N 233899.15
E 1112243.86
3 C503
NEW GRAVEL STATION PAD
2 C503
4' WIDE PEDESTRIAN GATE
0+00
1+00
2+00
3+00
20'
3+19.33
CB RIM=374.0 CMP=370.4
ACCESS ROAD
50' RAD PT
N 233982.21
E 1112387.46
ACCESS ROAD
N 234155.97
E 1112433.65
EDGE OF ROAD PC
N 234046.22
E 1112364.98
EDGE OF ROAD
N 233838.17
E 1112326.38
EDGE OF ROAD PT
N 233955.57
E 1112345.15
EDGE OF ROAD
N 234150.02
E 1112441.69
COR ROAD
N 233905.90
E 1112376.43
4' WIDE FLAT BOTTOM DITCH
5 C506
WOODED AREA
SWALE SW-1B
ACCESS ROAD
150' RAD PT
N 233957.07
E 1112485.61
A C300
5 C507
TIMBER CHECK DAM
A C300
EXISTING SUBSTATION
0+00
1+00
2+00
3+00
4+00
5+00
6+00
7+00
7+75
N 233447.66
E 1112112.50
12" CMP INV.=369.4
SWALE SW-1C
N 234070.93
E 1112573.10
FOREBAY
SAND FILTER SF-1
EXISTING STONE WALL TO BE REMOVED
FENCE COR
N 233714.62
E 1112493.58
FENCE COR
N 233408.83
E 1112267.97
DETENTION BASIN DT-2
CORNER OF PAD
N 233404.64
E 1112268.60
SITE CLEARING AREA (TYP.)
CORNER OF PAD
N 233715.25
E 1112497.77
LIMIT OF TREE / WOODS CLEARING, (TYP.)
6+00
6+25
N 233499.74
E 1112465.34
B C300
100 YEAR FLOOD LINE (TYP.)
WETLAND IMPACT BOUNDARY (9,037 SF.)
FEMA ZONE X
FEMA ZONE A
NORTH
0
20'
40'
80'
SCALE IN FEET

SITE NOTES:

1. REFER TO SHEET NPTT602-G001 FOR ADDITIONAL GENERAL NOTES, ABBREVIATIONS, AND LEGENDS.
2. THE SUBSTATION ELECTRICAL EQUIPMENT, ENCLOSURES, FOUNDATIONS, OTHER SUBSTATION APPURTENANCES, OVERHEAD TRANSMISSION, AND UNDERGROUND TRANSMISSION ARE SHOWN FOR REFERENCE ONLY.
3. THIS DRAWING IS INTENDED TO DEPICT SITE LAYOUT ONLY.
4. CONTRACTOR SHALL TAKE PRECAUTIONS TO ENSURE NO DISTURBANCE BEYOND DEPICTED LIMIT OF NPDES/LIMIT OF DISTURBANCE.
5. NEW HAMPSHIRE STATE PLANE COORDINATE SYSTEM
   HORIZONTAL DATUM - NAD83
   VERTICAL DATUM - NAVD88
6. UPON COMPLETION OF SITE CLEARING, THE CONTRACTOR SHALL FURNISH AND INSTALL PERMANENT BENCHMARKS IN THE LOCATIONS DEPICTED ON THE PLANS IN ACCORDANCE WITH THE STATE OF NEW HAMPSHIRE SURVEYING CODES AND STANDARDS. BENCHMARK ELEVATIONS SHALL BE SET IN FIELD AND VERIFIED PRIOR TO START OF CONSTRUCTION.
7. OFFSITE ROADWAY (TOWN AND/OR STATE) IMPROVEMENTS AS A RESULT OF THE STATION DEVELOPMENT ARE NOT ANTICIPATED.

NO.	REVISION	DATE	DRWN	CHKD	APPRV.
1	ISSUED FOR PERMITTING	10/1/15	FP	RLR	BSS

STATE OF NEW HAMPSHIRE BRIAN S. SAKIDOVITCH No. 14328 LICENSED PROFESSIONAL ENGINEER

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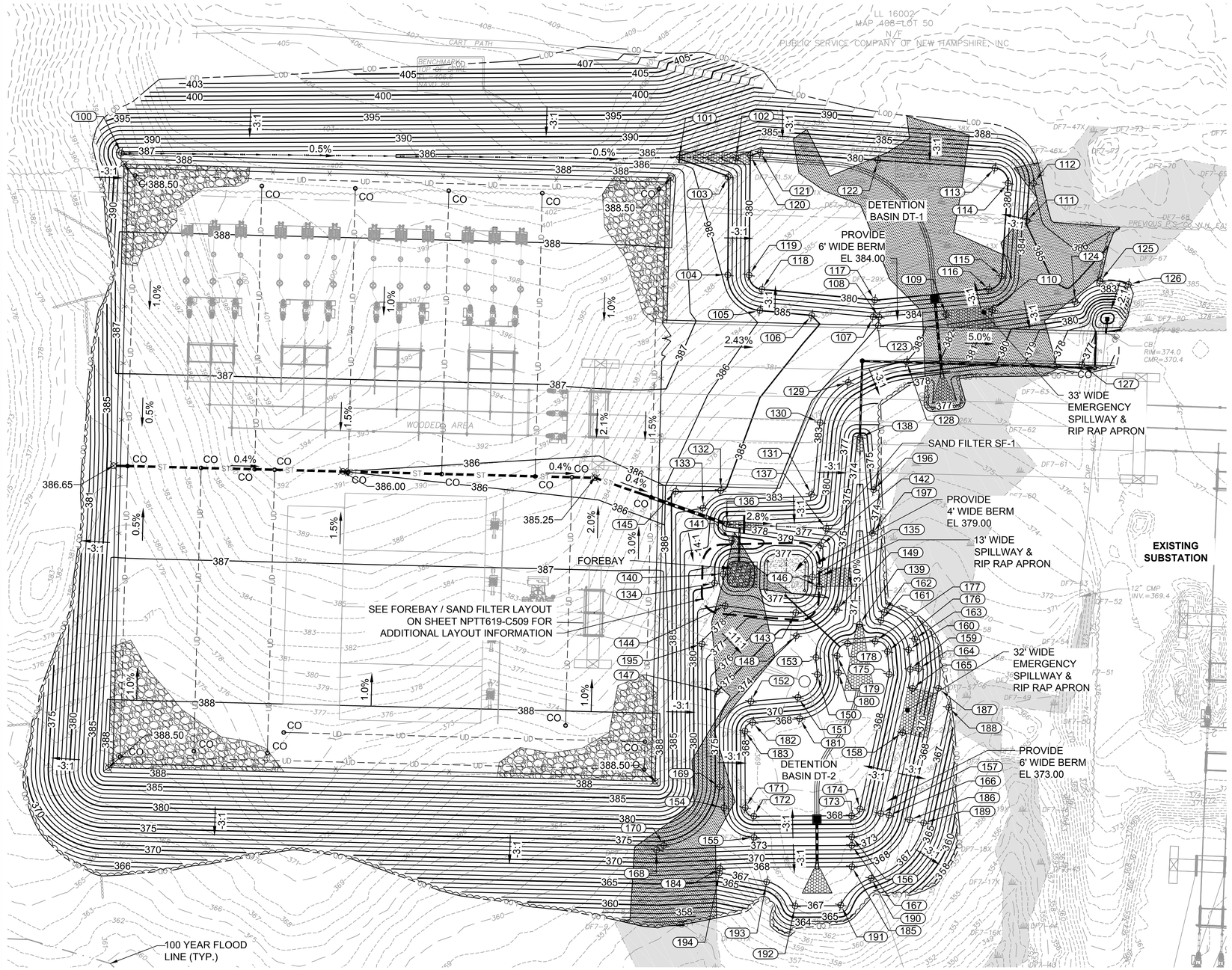
THE NORTHERN PASS
Transmission Business

DEERFIELD SUBSTATION SITE LAYOUT PLAN

DATE: 10/1/2015
SCALE: H 1" = 40'
DES: LRM | CHK: RLR
DRW: FP | APR: BSS
TOWN: OFF CATE ROAD, DEERFIELD, NH
TRANSMISSION LINE:
MILE NO:
SHEET 3 OF 19
NPTT603-C100

GRADING NOTES:

1. REFER TO SHEET NPTT602-G001 FOR ADDITIONAL GENERAL NOTES, ABBREVIATIONS, AND LEGENDS.
2. REFER TO SHEET NPTT609-C300 FOR GRADING CROSS SECTIONS.
3. NEW HAMPSHIRE STATE PLANE COORDINATE SYSTEM
   HORIZONTAL DATUM - NAD83
   VERTICAL DATUM - NAVD88
4. PROPOSED CONTOURS AND SPOT ELEVATIONS INDICATED REFER TO TOP OF FINISH SURFACE.
5. ALL FILL AND CUT SLOPES ARE 3-FT HORIZONTAL TO 1-FT VERTICAL (3:1) UNLESS NOTED OTHERWISE.
6. CONTRACTOR SHALL PLACE 4" TOPSOIL AND SEED ON ALL CUT AND FILL SLOPES AS SPECIFIED UNLESS ANOTHER SURFACE MATERIAL IS INDICATED. EROSION CONTROL BLANKETS (NORTH AMERICAN GREEN SC250 OR ENGINEER APPROVED EQUAL) SHALL BE PLACED OVER ALL SEEDED SIDE SLOPES.
7. AFTER COMPLETION OF YARD SUBGRADE WORK, THE SURFACE COURSE FOR THE SUBSTATION (INSIDE THE FENCE, 3-FT OUTSIDE THE FENCE, AND WHERE INDICATED ON THE PLANS) SHALL CONSISTS OF A 4-INCH LAYER OF CRUSHED BASALT (ANGULAR STONE) STONE MEETING THE GRADATION REQUIREMENTS EXPLAINED IN THE SPECIFICATIONS.
8. CONTRACTOR SHALL PROTECT/REPAIR ALL SLOPES UNTIL FINAL VEGETATIVE OR STONE STABILIZATION.
9. ALL EXCAVATIONS SHALL BE THOROUGHLY SECURED AND STABILIZED ON A DAILY BASIS BY THE CONTRACTOR AT THE COMPLETION OF CONSTRUCTION OPERATIONS.
10. STABILIZE ALL DITCHES, SWALES, AND PONDS PRIOR TO DIRECTING STORMWATER RUNOFF TO THEM.
11. TURF REINFORCEMENT MAT (TRM) SHALL BE INSTALLED ON ALL 3-FT HORIZONTAL TO 1-FT VERTICAL SLOPES (3:1) OR STEEPER, AND BE NORTH AMERICAN GREEN SC250 OR APPROVED EQUAL.
12. EARTHWORK AND COMPACTION SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS MADE IN THE GEOTECHNICAL ENGINEERING REPORT BY OTHERS.



LAYOUT POINTS TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
100	233660.85	1111918.54	387.00	CL 2' DITCH
101	233981.72	1112146.85	385.00	CL 2' - 4' DITCH
102	234014.26	1112170.12	381.00	CL 4' DITCH
103	234001.90	1112177.80	385.00	TSLOPE
104	233962.14	1112234.39	385.00	TSLOPE
105	233966.26	1112267.96	385.00	TSLOPE
106	233994.22	1112291.77	385.00	TSLOPE
107	234029.07	1112317.52	384.00	TSLOPE
108	234032.51	1112319.92	384.00	TSLOPE
109	234072.08	1112345.81	384.00	32' SPILLWAY
110	234100.96	1112361.77	384.00	32' SPILLWAY
111	234156.87	1112324.10	385.00	TSLOPE
112	234175.94	1112305.24	386.00	TSLOPE
113	234159.75	1112280.76	380.00	BSLOPE
114	234161.24	1112294.82	380.00	BSLOPE
115	234119.94	1112345.95	380.00	BSLOPE
116	234107.24	1112348.37	380.00	BSLOPE
117	234036.85	1112308.38	380.00	BSLOPE
118	233975.99	1112256.54	380.00	BSLOPE
119	233974.34	1112243.11	380.00	BSLOPE
120	234023.45	1112174.46	380.00	BSLOPE
121	234030.68	1112176.70	380.00	BSLOPE
122	234095.40	1112228.76	380.00	BSLOPE
123	234028.61	1112324.61	384.00	TSLOPE
124	234152.06	1112390.41	384.00	TSLOPE
125	234174.86	1112388.80	384.00	TSLOPE
126	234189.89	1112402.08	384.00	TSLOPE
127	234130.41	1112429.68	377.00	TSLOPE
128	234030.26	1112356.97	383.00	TSLOPE
129	233988.17	1112345.26	383.00	TSLOPE
130	233955.67	1112357.16	383.00	TSLOPE
131	233921.60	1112395.11	383.00	TSLOPE
132	233870.77	1112356.18	385.00	TSLOPE
133	233853.39	1112359.15	384.00	TSLOPE
134	233829.69	1112407.22	380.00	TSLOPE
135	233888.72	1112443.26	378.00	FOREBAY/SFILTER
136	233860.69	1112378.12	378.00	CL 4' DITCH
137	233916.25	1112420.70	376.00	CL 4' DITCH
138	233972.78	1112381.87	374.00	CL 4' DITCH
139	233896.80	1112489.81	370.00	CL 4' DITCH
140	233838.33	1112405.51	378.00	FOREBAY/SFILTER
141	233856.88	1112389.53	381.00	T/SLOPE
142	233906.33	1112428.62	379.00	T/SLOPE
143	233864.72	1112457.23	379.00	T/SLOPE
144	233826.65	1112424.67	379.00	T/SLOPE
145	233844.28	1112338.45	385.00	BSLOPE
146	233888.95	1112451.52	379.00	13' SPILLWAY
147	233787.26	1112470.95	375.00	BSLOPE
148	233855.65	1112470.76	374.00	BSLOPE

LAYOUT POINTS TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
149	233889.66	1112472.07	371.00	BSLOPE
150	233852.15	1112501.67	373.00	TSLOPE
151	233831.63	1112507.07	373.00	TSLOPE
152	233802.86	1112490.30	373.00	TSLOPE
153	233858.19	1112491.30	373.00	TSLOPE
154	233744.18	1112540.95	373.00	TSLOPE
155	233749.47	1112570.18	373.00	TSLOPE
156	233806.25	1112609.55	373.00	TSLOPE
157	233832.46	1112607.73	373.00	TSLOPE
158	233877.89	1112569.87	373.00	32' SPILLWAY
159	233907.88	1112536.31	373.00	TSLOPE
160	233914.86	1112524.33	373.00	TSLOPE
161	233910.88	1112496.11	373.00	TSLOPE
162	233916.00	1112492.76	373.00	TSLOPE
163	233922.70	1112520.55	370.00	TSLOPE
164	233913.07	1112539.33	373.00	TSLOPE
165	233901.41	1112548.17	373.00	32' SPILLWAY
166	233836.53	1112612.13	373.00	TSLOPE
167	233802.83	1112614.48	373.00	TSLOPE
168	233688.20	1112538.09	373.00	TSLOPE
169	233750.14	1112527.09	374.00	BSLOPE
170	233694.18	1112538.39	374.00	BSLOPE
171	233756.51	1112549.50	368.00	BSLOPE
172	233758.02	1112557.85	368.00	BSLOPE
173	233814.80	1112597.23	368.00	BSLOPE
174	233822.29	1112596.70	368.00	BSLOPE
175	233893.66	1112530.60	368.00	BSLOPE
176	233901.91	1112516.78	368.00	BSLOPE
177	233899.02	1112505.84	368.00	BSLOPE
178	233882.09	1112495.97	368.00	BSLOPE
179	233871.15	1112498.85	368.00	BSLOPE
180	233865.10	1112509.22	368.00	BSLOPE
181	233824.08	1112520.03	368.00	BSLOPE
182	233795.30	1112503.26	368.00	BSLOPE
183	233787.35	1112505.03	368.00	BSLOPE
184	233717.26	1112574.49	368.00	BSLOPE
185	233794.28	1112626.81	368.00	BSLOPE
186	233846.71	1112623.16	368.00	BSLOPE
187	233916.56	1112558.68	368.00	BSLOPE
188	233914.78	1112573.93	367.00	TSLOPE
189	233853.49	1112630.50	367.00	TSLOPE
190	233800.73	1112641.26	367.00	TSLOPE
191	233772.32	1112644.44	367.00	TSLOPE
192	233745.55	1112626.48	367.00	TSLOPE
193	233738.84	1112601.08	367.00	TSLOPE
194	233715.19	1112576.73	367.00	TSLOPE
195	233797.78	1112437.29	378.00	BSLOPE
196	233959.46	1112417.62	375.00	TSLOPE
197	233941.05	1112442.30	374.00	TSLOPE

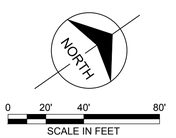
NO.	ISSUED FOR PERMITTING REVISION	DATE	DRWN	CHKD	APPRV
1		10/1/15	FP	RLR	BSS

THE NORTHERN PASS
Transmission Business

DEERFIELD SUBSTATION
GRADING PLAN

DATE: 10/1/2015
SCALE: H 1" = 40'

This document has been digitally sealed.
Oct 5 2015



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DES: LRM	CHK:RLR
DRW: FP	APR: BSS
TOWN: DEERFIELD, NH	
TRANSMISSION LINE:	
MILE NO:	
SHEET 4 OF 19	
NPTT604-C101	

REVISION: 11/10/2013

\\BMCD\DFS\CLIENTS\TND\NUSC\58466_NPT\DESIGN\SUBSTATION\600-DEERFIELD\CADD\CIVIL-SITE\NPTT604-C101.DWG 10/5/2015 8:31 AM KAMARX

5 C506 2' WIDE FLAT BOTTOM DITCH

RIPRAP LINED 2' WIDE FLAT BOTTOM DITCH 4 C506

LOW FLOW CHANNEL, (TYP.) 6 C506

CONSTRUCTION FENCE, (TYP.) 4 C503

2 C501 STONE CHECK DAM N 233904.51 E 1112093.01

STONE CHECK DAM N 233975.29 E 1112142.09

DETENTION BASIN DT-1

INLET SEDIMENT BARRIER 4 C501

CONSTRUCTION ENTRANCE 1 C501

STONE CHECK DAM N 233910.05 E 1112415.65

SAND FILTER SF-1

FOREBAY

STONE CHECK DAM N 233901.40 E 1112483.26

LOW FLOW CHANNEL, (TYP.) 6 C506

SILT FENCE (TYP.) 5 C501

DETENTION BASIN DT-2

EROSION CONTROL BLANKET, (TYP.) 3 C501

EXISTING SUBSTATION

100 YEAR FLOOD LINE (TYP.)

LL 16002
MAP 408-LOT 50
N/F
PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE, INC

PREVIOUS PSCO N.H. EASEMENT LINE

CART PATH

WOODED AREA

FEMA ZONE X

FEMA ZONE A

CB RIM=374.0 CMR=370.4

12" CMP INV.=369.4

NOTES:

1. **SEE SHEET NPTT610-C500 FOR EROSION AND SEDIMENTATION NOTES.**
2. **TOTAL LIMIT OF DISTURBANCE = 363,902 SF = 8.40 ACRES**

STATE OF NEW HAMPSHIRE
BRIAN K. SAWTOWICH
No. 14328
LICENSED PROFESSIONAL ENGINEER

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Oct 5 2015

NORTH

0 20' 40' 80'
SCALE IN FEET

FOR PERMITTING PURPOSES ONLY NOT FOR CONSTRUCTION

NO.	ISSUED	DATE	DRWN	CHKD	APPRV
1	ISSUED FOR PERMITTING REVISION	10/1/15	FP	RLR	BSS

THE NORTHERN PASS
Transmission Business

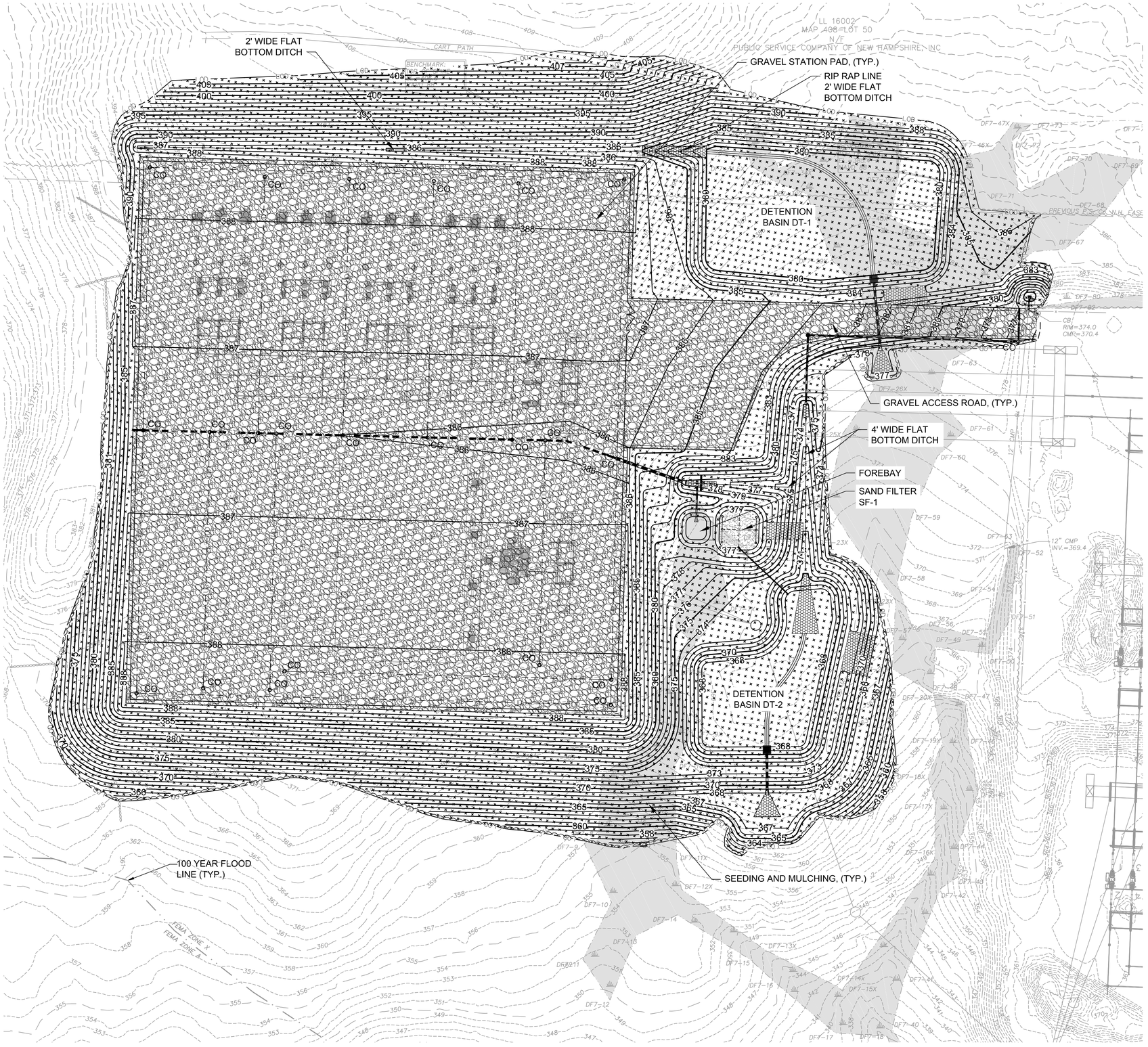
DEERFIELD SUBSTATION
EROSION AND SEDIMENTATION CONTROL PLAN

DATE: 10/1/2015
SCALE: H 1" = 40'

DES: LRM | CHK: RLR
DRW: FP | APR: BSS

TOWN: DEERFIELD, NH
TRANSMISSION LINE:
MILE NO:
SHEET 5 OF 19
NPTT605-C102

REVISION: 11/10/2013



PLANTING PLAN NOTES:

1. REFER TO SHEET NPTT602-G001 FOR ADDITIONAL GENERAL NOTES, ABBREVIATIONS, AND LEGENDS.

2. THIS DRAWING IS INTENDED TO DESCRIBE LANDSCAPE INFORMATION ONLY.

3. ALL DISTURBED AREAS NOT OTHERWISE DEVELOPED SHALL HAVE A MINIMUM OF 4" OF LOAM AND THE FOLLOWING SEED MIXTURE:
   NHDOT TYPE 44 (MIN. 80 LBS/ACRE):
   44% CREEPING RED FESCUE (MIN. 35 LBS/ACRE)
   38% PERENNIAL RYEGRASS (MIN. 30 LBS/ACRE)
   6% REDTOP (MIN. 5 LBS/ACRE)
   6% ALSIKE CLOVER (MIN. 5 LBS/ACRE)
   6% BIRDSFOOT TREFOIL (MIN. 5 LBS/ACRE)
   ALL SEEDING SHALL BE IN ACCORDANCE WITH THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS (2010) SECTION 644 -- GRASS SEED AND THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES STORMWATER MANUAL VOLUME 3 PERMANENT VEGETATION IN SECTION 4.1.

4. NO SEEDING SHALL BE PLACED BEFORE ROUGH GRADING HAS BEEN PROPERLY COMPLETED.

5. TOPSOIL SHALL BE INSTALLED AT A MINIMUM DEPTH OF 4". CONTRACTOR SHALL SUBMIT SAMPLES FROM EACH PROPOSED TOPSOIL SOURCE TO A CERTIFIED TESTING LABORATORY TO DETERMINE pH, FERTILITY, ORGANIC CONTENT AND MECHANICAL COMPOSITION. CONTRACTOR SHALL SUBMIT THE TEST RESULTS TO OWNER OR LANDSCAPE ARCHITECT FOR REVIEW. CONTRACTOR SHALL INCORPORATE AMENDMENTS FOR PROPER SOIL pH AND PLANT GROWTH AS RECOMMENDED BY TEST REPORTS AT NO INCREASE IN CONTRACT PRICE.

6. TEMPORARY AND PERMANENT SEEDING SHALL SHALL BE IN ACCORDANCE WITH THE PLANTING PLAN, NH DES STORMWATER MANUAL VOLUME 3, AND NH DOT STANDARD SPECIFICATIONS SECTION 644.

7. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 TO 5 INCHES -- 6 TO 12 INCHES ON COMPACTED SOILS -- PRIOR TO PLACEMENT OF TOPSOIL. AREAS TO BE VEGETATED SHALL HAVE A MINIMUM 4 INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING.

8. PLACING LOAM ON SITE: ALL SUBGRADE ELEVATIONS SHOULD BE UNIFORMLY GRADED TO RECEIVE LOAM AND SHALL BE INSPECTED AND APPROVED BY THE GENERAL CONTRACTOR PRIOR TO PLACEMENT OF LOAM. PLACE LOAM TO FORM A MINIMUM DEPTH OF 4" WHEN ROLLED, UNLESS OTHERWISE INDICATED. ALL DEPRESSIONS EXPOSED DURING THE ROLLING SHALL BE FILLED WITH ADDITIONAL LOAM.

9. SEED BED PREPARATION: AFTER FINISH GRADING AND JUST BEFORE SEEDING, THE AREAS TO BE SEEDED SHALL BE LOOSENED TO PROVIDE A ROUGH, FIRM BUT FINELY PULVERIZED SEEDBED. THE INTENT IS A TEXTURE CAPABLE OF RETAINING WATER, SEED AND FERTILIZER WHILE REMAINING STABLE AND ALLOWING SEED TIME TO GERMINATE. SEED SHALL BE APPLIED TO THE CONDITIONED SEEDBED NOT MORE THAN 48 HOURS AFTER THE SEEDBED HAS BEEN PREPARED.

10. LIME AND FERTILIZER SHALL BE INCORPORATED INTO THE SOIL PRIOR TO OR AT THE TIME OF AT THE TIME OF SEEDING. A MINIMUM OF 2 TONS PER ACRE OF AGRICULTURAL LIMESTONE AND 500 LBS. PER ACRE OF 10-20-20 FERTILIZER SHALL BE APPLIED. SEEDING PRACTICES SHALL COMPLY WITH LOCAL USDA SOIL CONSERVATION SERVICES RECOMMENDATIONS.

11. STRAW MULCH OR JUTE MATTING SHALL BE USED WHERE INDICATED ON THE PLANS. A MINIMUM OF 1.5 TONS OF MULCH PER ACRE SHALL BE APPLIED. MULCH SHALL BE ANCHORED IN PLACE WHERE NECESSARY. JUTE MATTING SHALL BE LAID IN THE DIRECTION OF RUNOFF FLOW AND APPLIED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

12. PERMANENT OR TEMPORARY COVER MUST BE IN PLACE BEFORE THE GROWING SEASON ENDS. WHEN SEEDED AREAS ARE MULCHED, PLANTINGS MAY BE MADE FROM EARLY SPRING TO EARLY OCTOBER. WHEN SEEDED AREAS AREA NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20 OR FROM AUGUST 15 TO SEPTEMBER 15. NO DISTURBED AREA SHALL BE LEFT EXPOSED DURING WINTER MONTHS.

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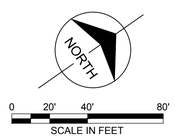
Oct 5 2015



FOR PERMITTING PURPOSES ONLY NOT FOR CONSTRUCTION

NO.	REVISION	DATE	DRWN	CHKD	APPRV
1	ISSUED FOR PERMITTING	10/7/15	FP	RLR	BSS

THE NORTHERN PASS
Transmission Business

DEERFIELD SUBSTATION
PLANTING PLAN

DATE: 10/7/2015
SCALE: H: 1" = 40'

DES: LRM | CHK: RLR
DRW: FP | APR: BSS

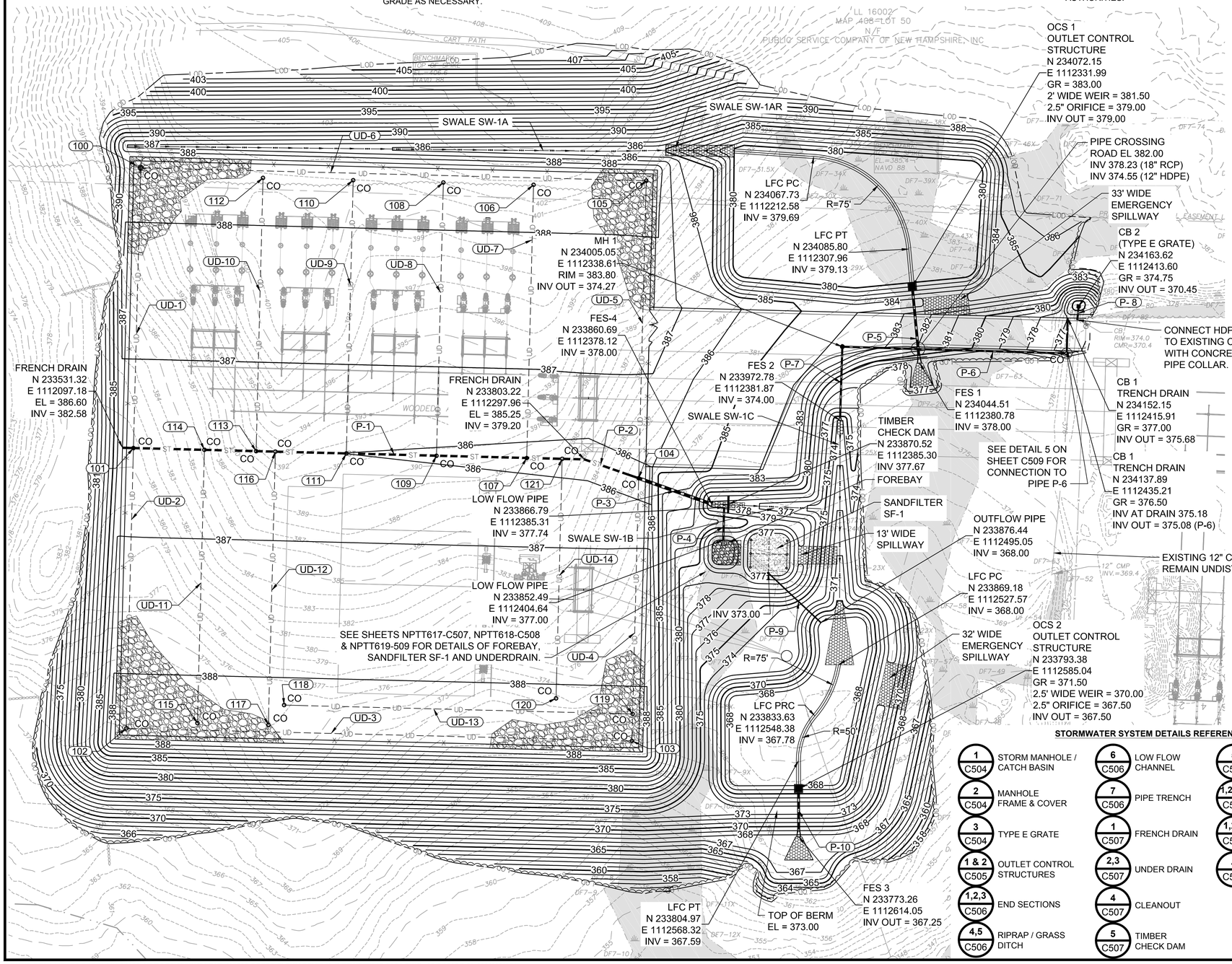
TOWN: DEERFIELD, NH
TRANSMISSION LINE:
MILE NO:
SHEET 6 OF 19
NPTT606-C103

REVISION: 11/10/2013

\\BMCD\DFS\CLIENTS\TND\NUSC\58466_NPT\DESIGN\SUBSTATION\600-DEERFIELD\CADD\CIVIL-SITE\NPTT606-C103.DWG 10/5/2015 8:40 AM KAMARX

STORMWATER SYSTEM NOTES:

1. REFER TO SHEET NPTT602-G001 FOR ADDITIONAL GENERAL NOTES, ABBREVIATIONS, AND LEGENDS.
2. THIS DRAWING IS INTENDED TO DESCRIBE THE STORMWATER SYSTEM ONLY.
3. NEW HAMPSHIRE STATE PLANE COORDINATE SYSTEM
   HORIZONTAL DATUM - NAD83
   VERTICAL DATUM - NAVD88
4. STORM DRAINAGE SYSTEM CONNECTIONS, MATERIALS, AND METHODS SHALL BE IN ACCORDANCE WITH THE NH DOT STANDARDS AND NH DOT SPECIFICATION SECTIONS 603 AND 604, AS WELL AS OTHER APPLICABLE INDUSTRY CODES AND GOVERNING AGENCY REQUIREMENTS.
5. THE CONTRACTOR SHALL VISIT THE SITE AND VERIFY THE ELEVATION AND LOCATION OF ALL UTILITIES BY VARIOUS MEANS PRIOR TO BEGINNING ANY EXCAVATION. TEST PITS SHALL BE DUG AT ALL LOCATIONS WHERE PROPOSED STORM PIPING WILL CROSS EXISTING UTILITIES, AND THE HORIZONTAL AND VERTICAL LOCATIONS OF THE UTILITIES SHALL BE DETERMINED. THE CONTRACTOR SHALL CONTACT THE ENGINEER IN THE EVENT OF ANY DISCOVERED OR UNFORESEEN CONFLICTS BETWEEN EXISTING AND PROPOSED SANITARY SEWERS, STORM PIPING AND UTILITIES SO THAT AN APPROPRIATE MODIFICATION MAY BE MADE.
6. MANHOLE RIMS AND CATCH BASIN GRATES SHALL BE SET TO ELEVATIONS SHOWN. SET ALL EXISTING MANHOLE RIMS, GRATES AND OTHER UTILITY TOPS TO BE RAISED OR LOWERED FLUSH WITH FINAL GRADE AS NECESSARY.
7. THE CONTRACTOR SHALL ARRANGE FOR AND COORDINATE WITH APPLICABLE REGULATORY AGENCIES FOR STORM DRAINAGE INSTALLATIONS AND CONNECTIONS.
8. THE CONTRACTOR SHALL COORDINATE WORK TO BE PERFORMED BY THE VARIOUS UTILITY PROVIDERS AND SHALL PAY ALL FEES FOR CONNECTIONS, DISCONNECTIONS, RELOCATIONS, INSPECTIONS, AND DEMOLITION UNLESS OTHERWISE STATED IN THE PROJECT SPECIFICATIONS MANUAL AND/OR GENERAL CONDITIONS OF THE CONTRACT.
9. ALL PIPES SHALL BE LAID ON STRAIGHT ALIGNMENTS AND EVEN GRADES USING A PIPE LASER OR OTHER ACCURATE METHOD.
10. ALL UTILITY CONSTRUCTION IS SUBJECT TO INSPECTION FOR APPROVAL PRIOR TO BACKFILLING, IN ACCORDANCE WITH THE APPROPRIATE OWNER, UTILITY PROVIDER, AND APPLICABLE REGULATORY AGENCY REQUIREMENTS.
11. A ONE-FOOT MINIMUM VERTICAL CLEARANCE BETWEEN ELECTRICAL AND TELEPHONE LINES TO STORM PIPING SHALL BE PROVIDED.
12. SITE CONTRACTOR SHALL PROVIDE ALL BENDS, FITTINGS, ADAPTERS, ETC., AS REQUIRED FOR PIPE CONNECTIONS.
13. THE CONTRACTOR SHALL MAINTAIN ALL FLOWS AND UTILITY CONNECTIONS WITHOUT INTERRUPTION UNLESS/UNTIL AUTHORIZED BY THE OWNER, THE ENGINEER, UTILITY PROVIDERS AND GOVERNING AUTHORITIES.
14. STORM DRAINAGE SHALL BE RATED FOR HS-20 LOADING.
15. LAY UNDERDRAINS BELOW CABLE TRENCH AS SPECIFIED. PROVIDE MINIMUM 0.5% SLOPE ON ALL UNDERDRAINS. ADDITIONAL UNDERDRAINS MAY BE REQUIRED AS DEEMED NECESSARY BY THE OWNER, GEOTECHNICAL ENGINEER AND/OR ENGINEER BASED ON FINDINGS AFTER EARTHWORK AND EXCAVATION OPERATIONS COMMENCE. PROVIDE UNDERDRAIN CLEANOUTS AT A MINIMUM OF EVERY 200' OF PIPE OR ONE CLEANOUT PER PIPE RUN WHERE THE PIPE RUN IS LESS THAN 200'.



PIPE SCHEDULE			
PIPE #	LENGTH (FT)	SLOPE	SIZE
P-1	338	0.010	24" PERF. HDPE
P-2	42	0.015	24" PERF. HDPE
P-3	57	0.010	24" HDPE
P-4	44	0.017	4" PVC
P-5	53	0.019	18" RCP
P-6	164	0.005	12" HDPE
P-7	54	0.005	12" HDPE
P-8	10	0.004(*)	12" HDPE
P-9	53	0.009	6" HDPE
P-10	32	0.008	24" RCP

(*) APPROXIMATE SLOPE TO MATCH EXISTING 12" CMP.

UNDERDRAIN SCHEDULE		
PIPE #	LENGTH (FT)	SLOPE
UD-1	205	0.005
UD-2	205	0.005
UD-3	370	0.005
UD-4	192	0.016
UD-5	218	0.015
UD-6	370	0.005
UD-7	200	0.015
UD-8	200	0.015
UD-9	200	0.010
UD-10	200	0.005
UD-11	200	0.005
UD-12	200	0.005
UD-13	255	0.015
UD-14	175	0.019

NOTES:
1. UNDERDRAINS WITHIN SUBSTATION ARE 8" PERFORATED HDPE.
2. UNDERDRAIN WITHIN SAND FILTER ARE 6" PERFORATED HDPE.

UNDERDRAIN LAYOUT POINT TABLE				
POINT #	NORTHING	EASTING	INVERT ELEV	DESCRIPTION
100	233659.68	1111936.95	383.52	UNDERDRAIN
101	233537.75	1112101.94	382.50	UNDERDRAIN
102	233415.83	1112266.92	383.52	UNDERDRAIN
103	233713.56	1112486.59	381.71	UNDERDRAIN
104	233827.82	1112331.98	378.58	UNDERDRAIN
105	233957.24	1112156.85	381.71	UNDERDRAIN
106	233887.99	1112112.03	382.60	UNDERDRAIN
107	233769.18	1112272.92	379.60	UNDERDRAIN
108	233834.92	1112072.81	383.20	UNDERDRAIN
109	233716.11	1112233.70	380.20	UNDERDRAIN
110	233781.85	1112033.59	382.90	UNDERDRAIN
111	233663.04	1112194.48	380.90	UNDERDRAIN
112	233728.76	1111994.36	382.60	UNDERDRAIN
113	233609.96	1112155.25	381.60	UNDERDRAIN
114	233579.53	1112132.76	382.00	UNDERDRAIN
115	233460.67	1112293.61	383.00	UNDERDRAIN
116	233621.29	1112163.62	381.50	UNDERDRAIN
117	233502.43	1112324.47	382.50	UNDERDRAIN
118	233520.20	1112319.19	385.01	UNDERDRAIN
119	233725.27	1112470.74	381.26	UNDERDRAIN
120	233685.95	1112429.25	382.80	UNDERDRAIN
121	233790.12	1112288.29	379.40	UNDERDRAIN

STORMWATER SYSTEM DETAILS REFERENCE LIST

1 / C504	STORM MANHOLE / CATCH BASIN	6 / C506	LOW FLOW CHANNEL	5 / C508	TRENCH DRAIN
2 / C504	MANHOLE FRAME & COVER	7 / C506	PIPE TRENCH	1,2,3,4 / C508	DETENTION BASIN / SPILLWAY / SLOPE DETAILS
3 / C504	TYPE E GRATE	1 / C507	FRENCH DRAIN	1,2,3 / C509	SAND FILTER / FOREBAY
1 & 2 / C505	OUTLET CONTROL STRUCTURES	2,3 / C507	UNDER DRAIN	4 / C509	PIPE COLLAR
1,2,3 / C506	END SECTIONS	4 / C507	CLEANOUT		
4,5 / C506	RIPRAP / GRASS DITCH	5 / C507	TIMBER CHECK DAM		

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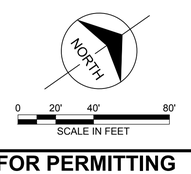
Oct 5 2015



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NO.	REVISION	DATE	DRWN	CHKD	APPRV
1	ISSUED FOR PERMITTING	10/7/15	FP	RLR	BSS

DEERFIELD SUBSTATION
STORMWATER SYSTEM PLAN
DATE: 10/1/2015
SCALE: H: 1" = 40'

DES: LRM	CHK:RLR
DRW: FP	APR: BSS
TOWN: DEERFIELD, NH	
TRANSMISSION LINE:	
MILE NO:	
SHEET 7 OF 19	
NPTT607-C104	

THE NORTHERN PASS
Transmission Business

REVISION: 11/10/2013

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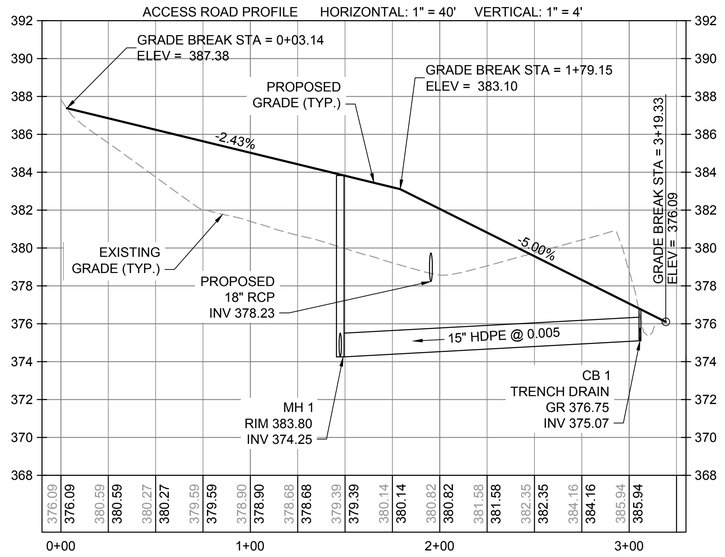

ACCESS ROAD PROFILE NOTES:

1. REFER TO SHEET NPTT602-G001 FOR ADDITIONAL GENERAL NOTES, ABBREVIATIONS, AND LEGENDS.
2. THIS DRAWING IS INTENDED TO DESCRIBE THE STATION ACCESS ROAD GEOMETRY ONLY.
3. NEW HAMPSHIRE STATE PLANE COORDINATE SYSTEM
   HORIZONTAL DATUM - NAD83
   VERTICAL DATUM - NAVD88
4. PROPOSED CONTOURS AND SPOT ELEVATIONS INDICATED REFER TO TOP OF FINISH SURFACE.

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Oct 5 2015

0 20' 40' 80'
SCALE IN FEET

0 4' 8'
SCALE IN FEET

FOR PERMITTING PURPOSES ONLY NOT FOR CONSTRUCTION

NO.	REVISION	DATE	DRWN	ChkD	APPRV
1	ISSUED FOR PERMITTING	10/1/15	FP	RLR	BSS

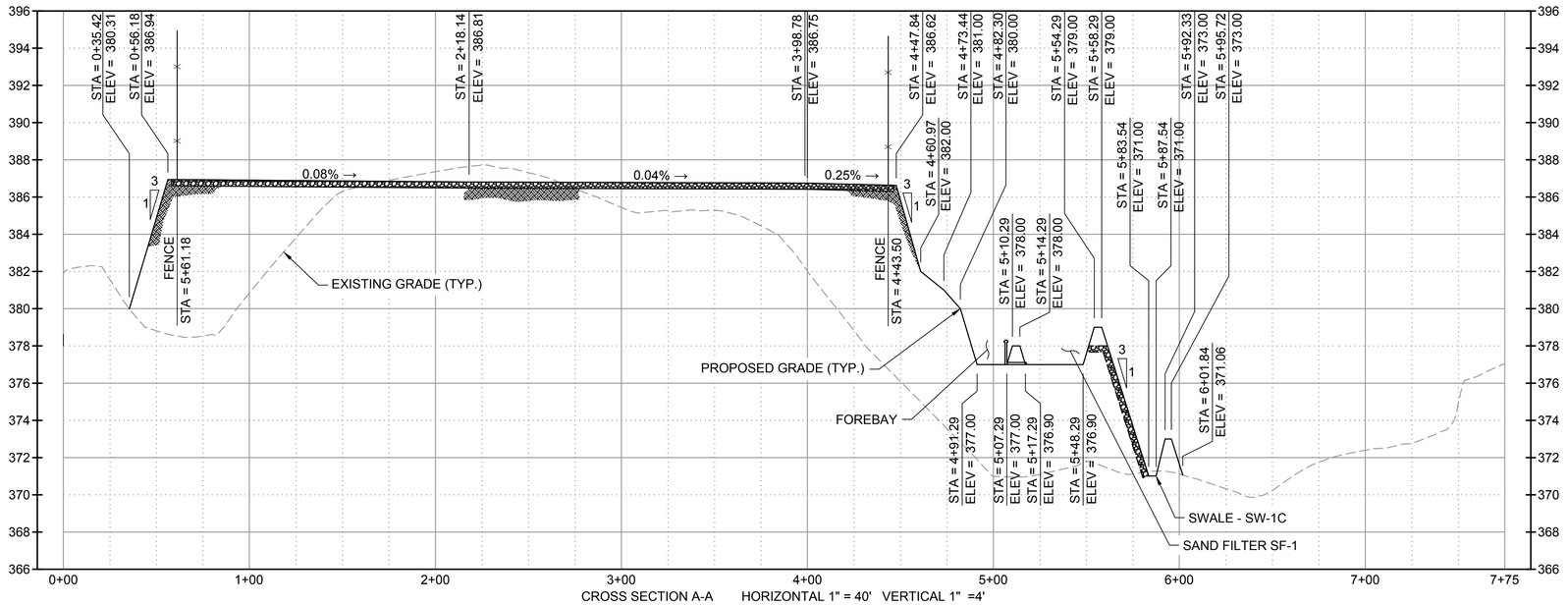
THE NORTHERN PASS
Transmission Business

DEERFIELD SUBSTATION
ACCESS ROAD PROFILE

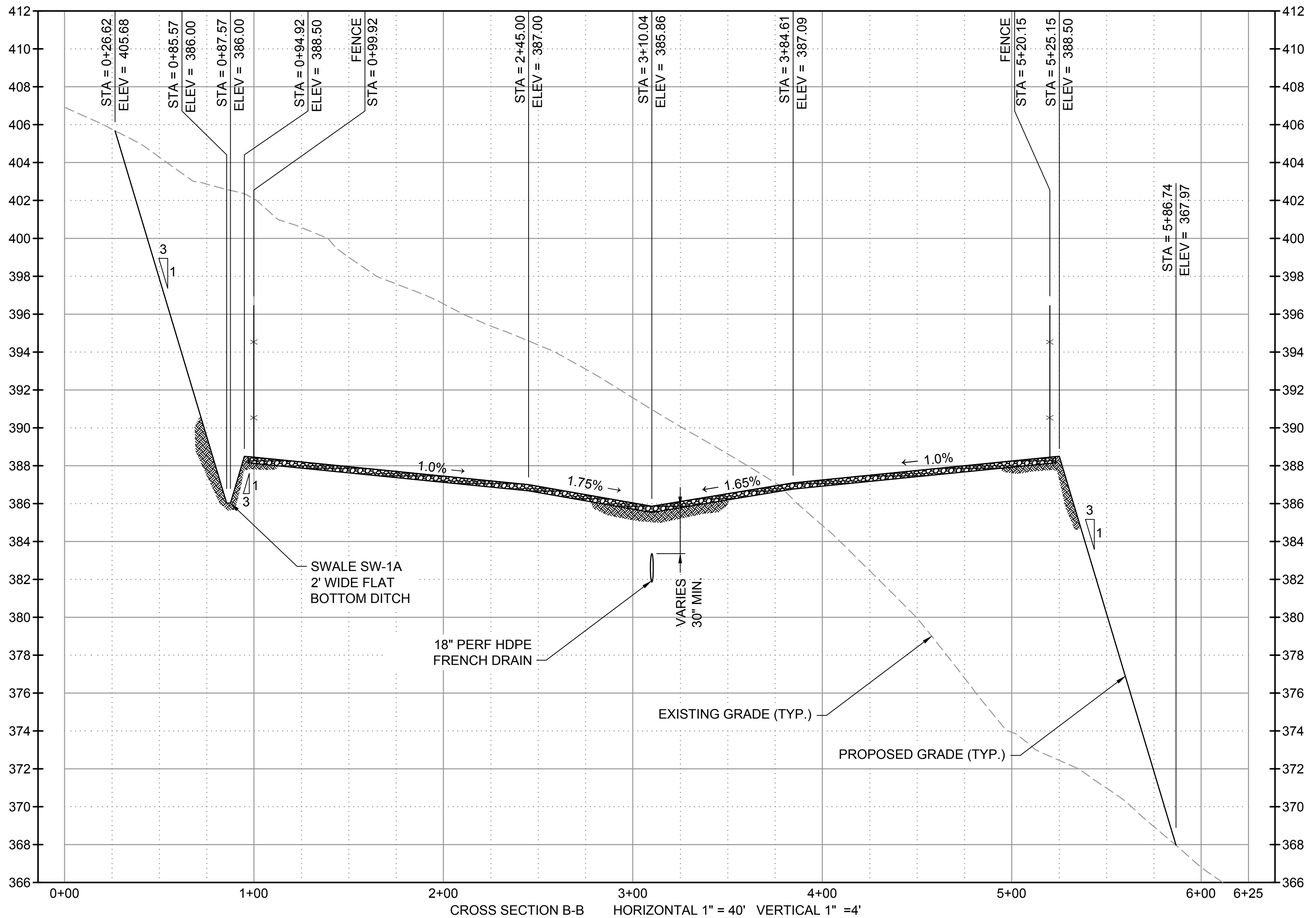
SCALE: H 1" = 40' V 1" = 4'
DATE: 10/1/2015

DES: LRM	CHK:RLR
DRW: FP	APR: BSS

TOWN: DEERFIELD, NH
TRANSMISSION LINE:
MILE NO:
SHEET 8 OF 19
NPTT608-C200
REVISION: 11/10/2013



CROSS SECTION A-A HORIZONTAL 1" = 40' VERTICAL 1" =4'



CROSS SECTION B-B HORIZONTAL 1" = 40' VERTICAL 1" =4'

GRADING CROSS SECTION NOTES:

1. REFER TO SHEET NPTT602-G001 FOR ADDITIONAL GENERAL NOTES, ABBREVIATIONS, AND LEGENDS.
2. THIS DRAWING IS INTENDED TO DESCRIBE THE GRADING CROSS SECTIONS ONLY.
3. NEW HAMPSHIRE STATE PLANE COORDINATE SYSTEM
   HORIZONTAL DATUM - NAD83
   VERTICAL DATUM - NAVD88
4. PROPOSED CONTOURS AND SPOT ELEVATIONS INDICATED REFER TO TOP OF FINISH SURFACE.
5. CONTRACTOR SHALL PLACE 4" TOPSOIL AND SEED ON ALL CUT AND FILL SLOPES AS SPECIFIED UNLESS ANOTHER SURFACE MATERIAL IS INDICATED.
6. EARTHWORK AND COMPACTION SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS MADE IN THE GEOTECHNICAL ENGINEERING RECOMMENDATIONS REPORT BY OTHERS.
7. STRIP AND STOCKPILE EXISTING TOPSOIL IN AREAS OF PROPOSED GRADING AND EARTHWORK.

STATE OF NEW HAMPSHIRE
BRIAN S. SAKIOTAKIS
No. 14328
LICENSED PROFESSIONAL ENGINEER

This document has been digitally sealed.
Oct 5 2015

0 20' 40' 80'
SCALE IN FEET

0 4' 8'
SCALE IN FEET

FOR PERMITTING PURPOSES ONLY NOT FOR CONSTRUCTION

NO.	REVISION	DATE	DRWN	CHKD	APPRV
1	ISSUED FOR PERMITTING	10/1/15	FP	RLR	BSS

THE NORTHERN PASS
Transmission Business

DEERFIELD SUBSTATION
SITE CROSS SECTIONS

DATE: 10/1/2015
SCALE: H 1" = 40'

DES: LRM | CHK: RLR
DRW: FP | APR: BSS

TOWN: OFF OXE ROAD, DEERFIELD, NH
TRANSMISSION LINE:
MILE NO:
SHEET 9 OF 19
NPTT609-C300
REVISION: 11/10/2013

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EROSION AND SEDIMENTATION CONTROL GENERAL NOTES:

1. THE SEDIMENT AND EROSION CONTROL PLAN IS ONLY INTENDED TO DESCRIBE THE SEDIMENT AND EROSION CONTROL TREATMENT FOR THIS SITE. SEE SEDIMENT AND EROSION CONTROL DETAILS AND CONSTRUCTION SEQUENCE. REFER TO SITE PLAN FOR GENERAL INFORMATION AND OTHER CONTRACT PLANS FOR APPROPRIATE INFORMATION.

2. CONSTRUCTION ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE GENERAL NOTES, SEQUENCE PROVIDED ON THE PLAN DRAWINGS. DEVIATION FROM THAT SEQUENCE MUST BE APPROVED IN WRITING BY THE OWNER, QUALIFIED PROFESSIONAL, AND APPROPRIATE REGULATORY AGENCY PRIOR TO IMPLEMENTATION.

3. THE EROSION AND SEDIMENTATION CONTROL MEASURES, CONSTRUCTION SEQUENCE AND PHASING IS THE MINIMUM RECOMMENDED. THE CONTRACTOR SHALL INSTALL AND MAINTAIN ADDITIONAL MEASURES AND SEQUENCING AS REQUIRED BASED ON ACTUAL FIELD OPERATIONS AND CONDITIONS AND BE CONSISTENT WITH THE NEW HAMPSHIRE STORMWATER MANUAL. SIGNIFICANT ADDITIONS AND/OR MODIFICATIONS FROM THE PLANS SHALL BE SUBMITTED, REVIEWED AND APPROVED BY THE OWNER, QUALIFIED PROFESSIONAL AND APPLICABLE REGULATORY AGENCIES.

4. THE SEDIMENT AND EROSION CONTROL PLAN WAS DEVELOPED TO HELP PROTECT THE EXISTING ROADWAY AND STORM DRAINAGE SYSTEMS, ADJACENT PROPERTIES, AND ADJACENT WETLAND AREA FROM SEDIMENT LADEN SURFACE RUNOFF AND EROSION.

5. APPROPRIATE EROSION/SEDIMENT CONTROL MEASURES AS DESCRIBED HEREIN, SHALL BE INSTALLED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF ALL CLEARING, DEMOLITION AND CONSTRUCTION ACTIVITY WITHIN THE APPROVED LIMITS OF DISTURBANCE. SCHEDULE WORK TO MINIMIZE THE LENGTH OF TIME THAT BARE SOIL WILL BE EXPOSED. CONTRACTOR SHALL ONLY EXCAVATE AS MUCH UTILITY AND STORM PIPE TRENCH WORK AS CAN BE COMPLETED, BACKFILLED AND STABILIZED IN ONE DAY SO AS TO LIMIT THE AMOUNT OF OPEN, DISTURBED TRENCHING. THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION, BUT IN NO CASE SHALL EXCEED 5 ACRES AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED.

6. THE CONTRACTOR SHALL INSTALL ALL SPECIFIED EROSION/SEDIMENT CONTROL MEASURES AND WILL BE REQUIRED TO MAINTAIN THEM IN THEIR INTENDED FUNCTIONING CONDITION AND BE IN STRICT CONFORMANCE WITH THE STANDARDS BELOW. THE CONTRACTOR SHALL SUPPLY AND MAINTAIN THESE STANDARDS AND HAVE THEM AVAILABLE ONSITE FOR THE DURATION OF CONSTRUCTION. THE OWNER, AGENTS OF THE REGULATORY AGENCIES AND/OR QUALIFIED PROFESSIONAL SHALL HAVE THE AUTHORITY TO REQUIRE SUPPLEMENTAL MAINTENANCE OR ADDITIONAL MEASURES IF FIELD CONDITIONS ARE ENCOUNTERED BEYOND WHAT WOULD NORMALLY BE ANTICIPATED.
   A. EVERSOURCE BEST MANAGEMENT PRACTICES MANUAL (TO BE FURTHER DEVELOPED).
   B. NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES STORMWATER MANUAL, DECEMBER 2008.

7. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE CONTRACTOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO ELIMINATE THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION.

8. THE CONTRACTOR SHALL KEEP A SUPPLY OF EROSION CONTROL MATERIAL (STRAW BALES, SILT FENCE, JUTE MESH,RIP RAP ETC.) ON-SITE FOR MAINTENANCE AND EMERGENCY REPAIRS.

9. STONE CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED AT START OF CONSTRUCTION AND MAINTAINED THROUGHOUT THE DURATION OF CONSTRUCTION. THE LOCATION OF THE TRACKING PADS MAY CHANGE AS VARIOUS PHASES OF CONSTRUCTION ARE COMPLETED.

10. TOPSOIL SHALL BE STRIPPED AND STOCKPILED FOR USE IN FINAL LANDSCAPING. ALL EARTH STOCKPILES SHALL HAVE STRAW BALES OR SILT FENCE AROUND THE LIMIT OF PILE. PILES SHALL BE TEMPORARILY SEEDED IF PILE IS TO REMAIN IN PLACE FOR MORE THAN 2 MONTHS.

11. COMPLY WITH REQUIREMENTS OF THE EPA FOR NPDES AND RECORD KEEPING.

12. VISUAL SITE INSPECTIONS SHALL BE CONDUCTED WEEKLY, AND AFTER EACH MEASURABLE PRECIPITATION EVENT OF 0.50 INCHES OR GREATER BY QUALIFIED PERSONNEL, TRAINED AND EXPERIENCED IN EROSION AND SEDIMENT CONTROL, TO ASCERTAIN THAT THE EROSION AND SEDIMENT CONTROL (E&S) BMPS ARE OPERATIONAL AND EFFECTIVE IN PREVENTING POLLUTION. PROVIDE WRITTEN REPORTS IN ACCORDANCE WITH ANY APPLICABLE OWNER, QUALIFIED PROFESSIONAL, AND/OR REGULATORY AGENCY REQUIREMENTS.

13. STOCKPILES OF EARTH MATERIALS SHALL CONFORM TO SOIL STOCKPILE PRACTICES IN SECTION 4.1 OF THE NH DES STORMWATER MANUAL VOLUME 3.

14. DEWATERING SUMP PITS SHALL BE INSTALLED WHEN WATER COLLECTS DURING DURING EXCAVATION TO TRAP AND FILTER WATER FOR PUMPING INTO A SUITABLE DISCHARGE AREA. A PERFORATED VERTICAL STANDPIPE WRAPPED IN NON-WOVEN FILTER FABRIC IS PLACED IN THE CENTER OF THE PIT TO COLLECT FILTERED WATER WHERE IT IS THEN REMOVED FROM THE SUMP PIT IN AN AUTHORIZED MANNER. UNDER NO CIRCUMSTANCES SHALL DEWATERING DRAINAGE BE DISCHARGED INTO A SANITARY SEWER. CONSTRUCTION DEWATERING SHALL CONFORM TO CONSTRUCTION DEWATERING REQUIREMENTS OF THE NH DES STORMWATER MANUAL VOLUME 3 SECTION 4.2.

15. WATER SHALL BE USED FOR DUST CONTROL IN APPROPRIATE AREAS.

16. ALL REGULATORY AGENCY PERMITS REQUIRED FOR THE SITE SHALL BE OBTAINED PRIOR TO SITE WORK COMMENCES.

17. ALL OFF-SITE WASTE AND BORROW AREAS MUST HAVE AN E&S PLAN APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT FULLY IMPLEMENTED PRIOR TO BEING ACTIVATED.

18. E&S BMPS SHALL REMAIN FUNCTIONAL AS SUCH UNTIL ALL AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED OR UNTIL THEY ARE REPLACED BY ANOTHER BMP APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT.

19. MAXIMUM SLOPES SHALL NOT EXCEED 3-FT HORIZONTAL TO 1-FT VERTICAL (3:1), UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL VERIFY SLOPE STABILITY OF ALL SLOPES PRIOR TO CONSTRUCTION. UNSTABLE SLOPES SHALL BE LAID BACK (FLATTENED) UNTIL STABLE OR PROVIDE REINFORCING TO ACHIEVE STABILIZATION. SLOPE BENCHES SHALL BE IN ACCORDANCE WITH THE NHDES STORMWATER MANUAL.

20. THE CONTRACTOR SHALL MAINTAIN EMERGENCY ACCESS TO ALL AREAS AFFECTED BY HIS WORK AT ALL TIMES.

21. TEMPORARY AND PERMANENT SEEDING SHALL SHALL BE IN ACCORDANCE WITH THE PLANTING PLAN, NH DES STORMWATER MANUAL VOLUME 3, AND NH DOT STANDARD SPECIFICATIONS SECTION 644.

ALTERATION OF TERRAIN STANDARD NOTES:

1. THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

2. PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO EARTH MOVING OPERATIONS. INSTALL TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES AS NECESSARY PRIOR TO FURTHER EARTH MOVING OPERATIONS. PREVENTION OF EROSION AND SEDIMENT TRANSPORTATION ISSUES WILL BE FACILITATED BY THE PROMPT EMPLOYMENT OF EFFECTIVE TEMPORARY AND PERMANENT CONTROL DEVICES, AS CONDITIONS WARRANT. ADDITIONAL CONTROL DEVICES THAT ARE DETERMINED NECESSARY, NOT OUTLINED HEREIN, MAY BE INSTALLED BY THE OWNER OR OPERATOR.

3. PONDS AND SWALES SHALL BE INSTALLED EARLY ON IN THE CONSTRUCTION SEQUENCE PRIOR TO ROUGH GRADING THE SITE AND OTHER EARTH MOVING ACTIVITIES.

4. DITCHES AND SWALES SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.

5. ROADWAYS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.

6. CUT AND FILL SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.

7. INSPECT AND MAINTAIN ALL EROSION AND SEDIMENTATION CONTROL MEASURES WEEKLY AND AFTER EVERY HALF-INCH OF RAINFALL DURING THE LIFE OF THE PROJECT. REMOVE TRAPPED SEDIMENT FROM COLLECTOR DEVICES AS NEEDED.

8. STABLE IS DEFINED AS:
   A. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED,
   B. A MINIMUM OF 85 PERCENT VEGETATED GROWTH HAS BEEN ESTABLISHED,
   C. A MINIMUM 3-INCHES OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED,
   D. OR EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.

9. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.

10. TEMPORARY AND PERMANENT SEEDING SPECIFICATIONS ARE AS NOTED IN THE "VEGETATION MEASURES" SECTION ON THIS SHEET.

11. STANDARD WINTER NOTES:
   A. ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.
   B. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
   C. AFTER NOVEMBER 15, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3.

WINTER CONSTRUCTION NOTES:

1. WINTER EXCAVATION AND EARTHWORK SHALL BE COMPLETED AS SUCH THAT NO MORE THAN 1 ACRE OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME.

2. AN AREA WITHIN 100 FEET OF A PROTECTED NATURAL RESOURCE SHALL BE PROTECTED WITH A DOUBLE ROW OF SEDIMENT BARRIER.

3. TEMPORARY MULCH SHALL BE APPLIED WITHIN 7 DAYS OF SOIL EXPOSURE OR PRIOR TO ANY STORM EVENT, BUT AFTER EVERY WORKDAY IN AREAS WITHIN 100 FEET FROM A PROTECTED NATURAL RESOURCE.

4. AREAS THAT HAVE BEEN BROUGHT TO FINAL GRADE SHALL BE PERMANENTLY MULCHED THE SAME DAY.

5. IN THE EVENT OF A SNOWFALL GREATER THAN 1 INCH (FRESH OR CUMULATIVE), THE SNOW SHALL BE REMOVED FROM THE AREAS DUE TO BE SEEDED AND MULCHED.

6. LOAM SHALL BE FREE OF FROZEN CLUMPS BEFORE IT IS APPLIED.

7. A DITCH THAT WILL BE CONSTRUCTED DURING THE WINTER MUST BE STABILIZED WITH RIPRAP.

8. PERMANENT STABILIZATION CONSISTS OF AT LEAST 85% VEGETATION, PAVEMENT/GRAVEL BASE OR RIPRAP.

9. DO NOT EXPOSE SLOPES OR LEAVE SLOPES EXPOSED OVER THE WINTER OR FOR ANY OTHER EXTENDED TIME OF WORK SUSPENSION UNLESS FULLY PROTECTED WITH MULCH AND EROSION CONTROLS.

10. APPLY STRAW MULCH AT TWICE THE STANDARD RATE (150 LBS. PER 1,000 SF). THE MULCH MUST BE THICK ENOUGH SUCH THAT THE GROUND SURFACE WILL NOT BE VISIBLE AND MUST BE ANCHORED.

11. USE MULCH AND MULCH NETTING OR AN EROSION CONTROL MULCH BLANKET OR MIX FOR ALL SLOPES GREATER THAN 8% OR OTHER AREAS EXPOSED TO DIRECT WIND.

12. INSTALL AN EROSION CONTROL BLANKET IN ALL DRAINAGE WAYS (BOTTOM AND SIDES) WITH A SLOPE GREATER THAN 3%.

13. SEE THE VEGETATION MEASURES FOR MORE INFORMATION ON SEEDING DATES AND TYPES.

CONSTRUCTION SEQUENCE:

THE FOLLOWING CONSTRUCTION SEQUENCE IS RECOMMENDED (COORDINATE ALL SITE ACTIVITIES AND CONSTRUCTION SEQUENCE WITH THAT OF THE STATION ELECTRICAL EQUIPMENT, OVERHEAD AND UNDERGROUND TRANSMISSION LINES, AND OTHER STATION RELATED CONSTRUCTION):

1. CONTACT THE OWNER, QUALIFIED PROFESSIONAL, AND REGULATORY AGENT AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO COMMENCEMENT OF ANY DEMOLITION, CONSTRUCTION OR REGULATED ACTIVITY ON THIS PROJECT SITE.

2. CLEARING LIMITS SHALL BE PHYSICALLY MARKED IN THE FIELD AND APPROVED BY THE REGULATORY AGENT PRIOR TO THE START OF WORK ON THE SITE. INSTALL PERIMETER EROSION/SEDIMENT CONTROL MEASURES.

3. CONSTRUCT STONE CONSTRUCTION ENTRANCES/EXITS AND INSTALL INLET PROTECTION FOR CATCH BASINS OR INSTALL SILT SACKS ON CATCH BASIN INLETS LOCATED IN OFF-SITE ROADS. INSTALL SILT FENCE AND OTHER EROSION CONTROL DEVICES INDICATED ON THESE PLANS AT PERIMETER OF PROPOSED SITE DISTURBANCE AND INSTALL ALL EROSION/SEDIMENT CONTROL MEASURES AND TREE PROTECTION INDICATED ON THESE PLANS. INSTALL SEDIMENT BASINS AND SEDIMENT TRAPS IF REQUIRED AT LOW AREAS OF SITE OR AS ORDERED BY THE QUALIFIED PROFESSIONAL OR AS SHOWN ON THESE PLANS.

4. CLEAR AND GRUB SITE. STOCKPILE CHIPS. STOCKPILE TOPSOIL. INSTALL EROSION CONTROLS AT STOCKPILES.

5. COMMENCE INSTALLATION OF STORM DRAINAGE SYSTEM.

6. COMMENCE EARTHWORK. CONSTRUCT FILL SLOPE. INSTALL ADDITIONAL EROSION CONTROLS AS WORK PROGRESSES AND CONTINUE STORM DRAINAGE SYSTEM CONSTRUCTION, TOPSOIL AND SEED SLOPES WHICH HAVE ACHIEVED FINAL SITE GRADING.

7. CONSTRUCTION STAKING OF ALL FOUNDATION CORNERS, UTILITIES, ACCESS DRIVES, FENCES AND OTHER SITE APPURTENANCES.

8. ROUGH GRADING AND FILLING OF SUBGRADES AND SLOPES.

9. BEFORE DISPOSING OF SOIL OR RECEIVING BORROW FOR THE SITE, THE CONTRACTOR MUST PROVIDE EVIDENCE THAT EACH SPOIL OR BORROW AREA HAS AN EROSION AND SEDIMENT CONTROL PLAN APPROVED BY THE APPROPRIATE REGULATORY AGENCIES AND WHICH IS BEING IMPLEMENTED AND MAINTAINED. THE CONTRACTOR SHALL ALSO NOTIFY THE APPROPRIATE REGULATORY AGENCIES IN WRITING OF ALL RECEIVING SPOIL AND BORROW AREAS WHEN THEY HAVE BEEN IDENTIFIED.

10. CONTINUE INSTALLATION OF STORM DRAINAGE AS SUBGRADE ELEVATIONS ARE ACHIEVED.

11. CONSTRUCT PAD SUBGRADE PREPARATION AND BEGIN FOUNDATION CONSTRUCTION.

12. THROUGHOUT CONSTRUCTION SEQUENCE, REMOVE SEDIMENT FROM BEHIND SILT FENCES, STRAW BALES AND OTHER EROSION CONTROL DEVICES, AND FROM SEDIMENT TRAPS AS REQUIRED. REMOVAL SHALL BE ON A PERIODIC BASIS (EVERY SIGNIFICANT RAINFALL OF 0.50 INCH OR GREATER). INSPECTION OF EROSION/SEDIMENT CONTROL MEASURES SHALL BE ON A WEEKLY BASIS AND AFTER EACH RAINFALL OF 0.50 INCHES OR GREATER. SEDIMENT COLLECTED SHALL BE DEPOSITED AND SPREAD EVENLY UPLAND ON SLOPES DURING CONSTRUCTION.

13. COMPLETE GRADING TO SUBGRADES AND COMPLETE CONSTRUCTION OF FOUNDATIONS.

14. CONSTRUCT CURBS, PAVEMENT STRUCTURE AND SIDEWALKS

15. CONDUCT FINE GRADING.

16. PAVING OF ACCESS ROAD

17. CONSTRUCT OFF-SITE ROADWAY IMPROVEMENTS, AS NECESSARY.

18. INSTALL YARD SURFACE STONE. FINAL FINE GRADING OF SLOPE AND NON-PAVED AREAS.

19. PLACE 4" TOPSOIL ON SLOPES AFTER FINAL GRADING IS COMPLETED. FERTILIZE, SEED, AND MULCH.

20. LANDSCAPE INTERIOR NON-PAVED AREAS, NON-GRAVELED AREAS, AND PERIMETER AREAS.

21. INSTALL ON-SITE SIGNAGE AND PAVEMENT MARKINGS

22. CLEAN STORM DRAINAGE PIPE STRUCTURES, DETENTION SYSTEMS AND WATER QUALITY DEVICES OF DEBRIS AND SEDIMENT.

23. UPON DIRECTION OF THE OWNER, QUALIFIED PROFESSIONAL, AND REGULATORY AGENT, EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED FOLLOWING STABILIZATION OF THE SITE.

ROUGH GRADING OPERATIONS

1. DURING THE REMOVAL AND/OR PLACEMENT OF EARTH AS INDICATED ON THE GRADING PLAN, TOPSOIL SHALL BE STRIPPED AND APPROPRIATELY STOCKPILED FOR REUSE.

2. ALL STOCKPILED TOPSOIL SHALL BE SEEDED, APPLY MULCH OR STRAW, AND ENCLOSED BY A SILTATION FENCE.

FILLING OPERATIONS

1. PRIOR TO FILLING, ALL SEDIMENTATION AND EROSION CONTROL DEVICES SHALL BE PROPERLY IMPLEMENTED, MAINTAINED AND FULLY INSTALLED, AS DIRECTED BY THE QUALIFIED PROFESSIONAL AND AS SHOWN ON THIS PLAN.

PLACEMENT OF DRAINAGE STRUCTURES, UTILITIES, AND FOUNDATION CONSTRUCTION OPERATIONS

1. SILT FENCES SHALL BE INSTALLED AT THE DOWNHILL SIDES OF EXCAVATIONS, MUD PUMP DISCHARGES, AND UTILITY TRENCH MATERIAL STOCKPILES. STRAW BALES MAY BE USED IF SHOWN ON THE EROSION CONTROL PLANS OR IF DIRECTED BY THE QUALIFIED PROFESSIONAL.

FINAL GRADING AND PAVING OPERATIONS

1. ALL INLET AND OUTLET PROTECTION SHALL BE PLACED AND MAINTAINED AS SHOWN ON EROSION CONTROL PLANS AND DETAILS, AND AS DESCRIBED IN SPECIFICATIONS AND AS DESCRIBED HEREIN.

2. NO CUT OR FILL SLOPES SHALL EXCEED 2:1 EXCEPT WHERE STABILIZED BY ROCK FACED EMBANKMENTS OR EROSION CONTROL BLANKETS, JUTE MESH AND VEGETATION. ALL SLOPES SHALL BE SEEDED, AND ANY ROAD OR DRIVEWAY SHOULDER AND BANKS SHALL BE STABILIZED IMMEDIATELY UPON COMPLETION OF FINAL GRADING UNTIL TURF IS ESTABLISHED.

3. PAVEMENT SUB-BASE AND BASE COURSES SHALL BE INSTALLED OVER AREAS TO BE PAVED AS SOON AS FINAL SUB-GRADES ARE ESTABLISHED AND UNDERGROUND UTILITIES AND STORM DRAINAGE SYSTEMS HAVE BEEN INSTALLED.

4. AFTER CONSTRUCTION OF PAVEMENT, TOPSOIL, FINAL SEED, MULCH AND LANDSCAPING, REMOVE ALL TEMPORARY EROSION CONTROL DEVICES ONLY AFTER ALL AREAS HAVE BEEN PAVED AND/OR GRASS HAS BEEN WELL ESTABLISHED AND THE SITE HAS BEEN INSPECTED AND APPROVED BY THE OWNER AND THE APPLICABLE REGULATORY AGENCIES.

5. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM OF 85% UNIFORM PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING OR OTHER MOVEMENTS.

6. MAINTAIN ALL PERMANENT AND TEMPORARY SEDIMENT CONTROL DEVICES IN EFFECTIVE CONDITION THROUGHOUT THE CONSTRUCTION PERIOD. UPON COMPLETION OF WORK SWEEP PARKING LOT AND REMOVE ALL TEMPORARY SEDIMENT CONTROLS WHEN AUTHORIZED BY LOCAL GOVERNING AUTHORITY. FILE NOT (NOTICE OF TERMINATION) WITH GOVERNING AUTHORITY RESPONSIBLE FOR REGULATING STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES PER NPDES.

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Oct 5 2015

FOR PERMITTING PURPOSES ONLY NOT FOR CONSTRUCTION

NO.	ISSUED FOR PERMITTING REVISION	DATE	DRWN	CHKD	APPRV
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THE NORTHERN PASS
Transmission Business

DEERFIELD SUBSTATION
EROSION AND SEDIMENTATION CONTROL NOTES
DATE: 10/1/2015
SCALE: NTS

DES: LRM | CHK: RLR
DRW: FP | APR: BSS

TOWN: DEERFIELD, NH
TRANSMISSION LINE:
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SHEET 10 OF 19
NPT610-C500

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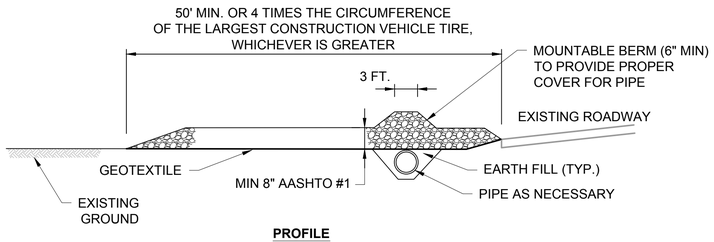

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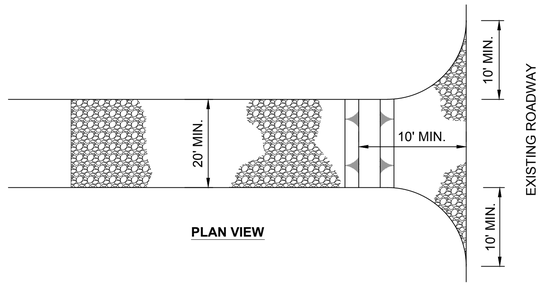
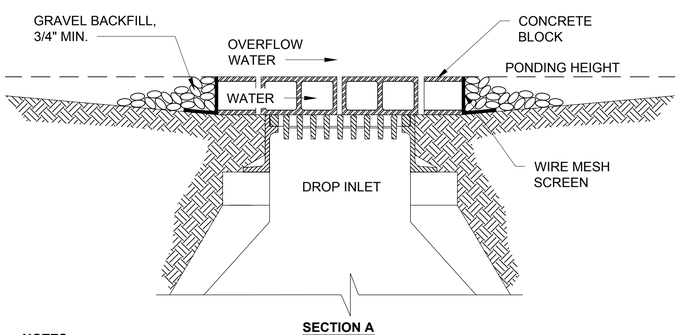


PLAN VIEW

NOTES:

1. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE SURFACE.
2. WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
3. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
4. WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
5. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN STORM EVENT.

STABILIZED CONSTRUCTION ENTRANCE — 1 / C102
NOT TO SCALE

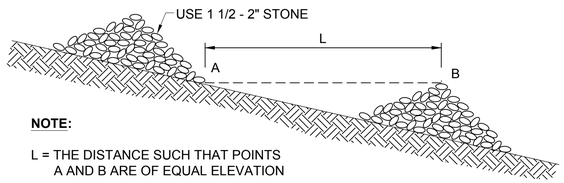


SECTION A

NOTES:

1. DROP INLET SEDIMENT BARRIERS ARE TO BE USED FOR SMALL, NEARLY LEVEL DRAINAGE AREAS. (LESS THAN 5%)
2. EXCAVATE A BASIN OF SUFFICIENT SIZE ADJACENT TO THE DROP INLET.
3. THE TOP OF THE STRUCTURE (PONDING HEIGHT) MUST BE WELL BELOW THE GROUND ELEVATION DOWNSLOPE TO PREVENT RUNOFF FROM BYPASSING THE INLET. A TEMPORARY DIKE MAY BE NECESSARY ON THE DOWNSLOPE SIDE OF THE STRUCTURE.

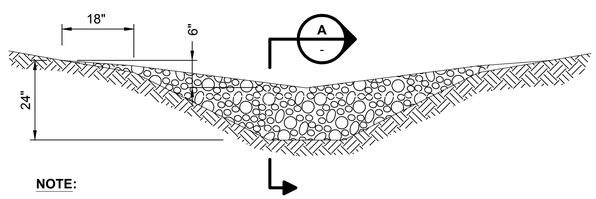
CONCRETE BLOCK AND GRAVEL DROP INLET SEDIMENT BARRIER — 4 / C102
NOT TO SCALE



NOTE:

L = THE DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION

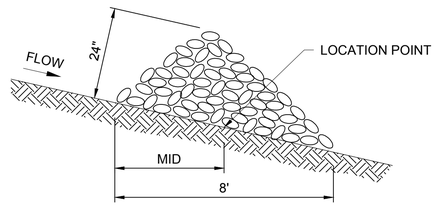
SIDE VIEW



NOTE:

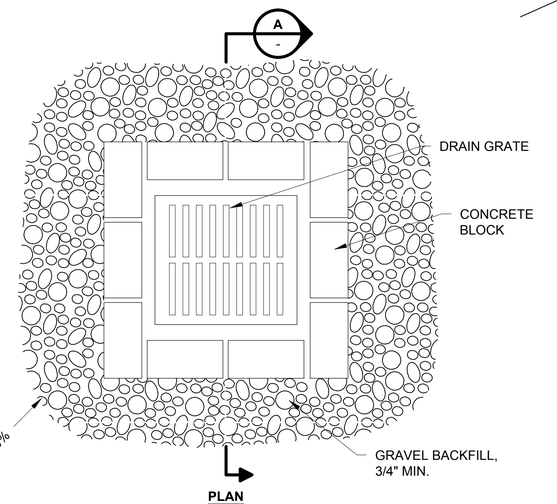
KEY STONE INTO CHANNEL BANKS AND EXTEND IT BEYOND THE ABUTMENTS A MINIMUM OF 18" TO PREVENT FLOW AROUND THE DAM.

VIEW LOOKING UPSTREAM

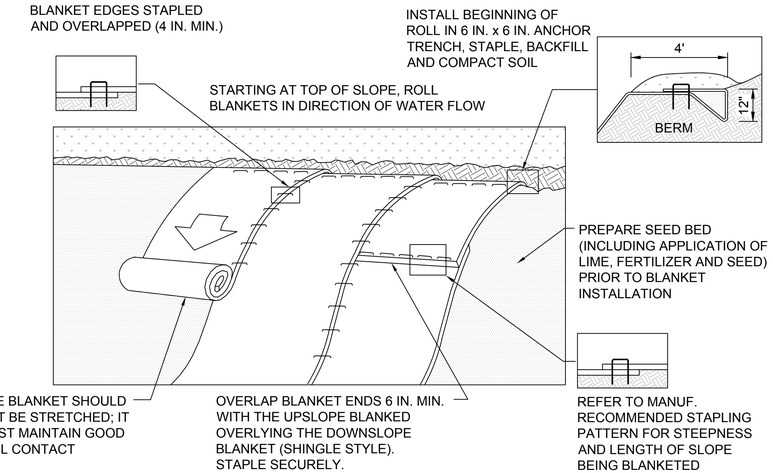


SECTION A

STONE CHECK DAM — 2 / C102
NOT TO SCALE



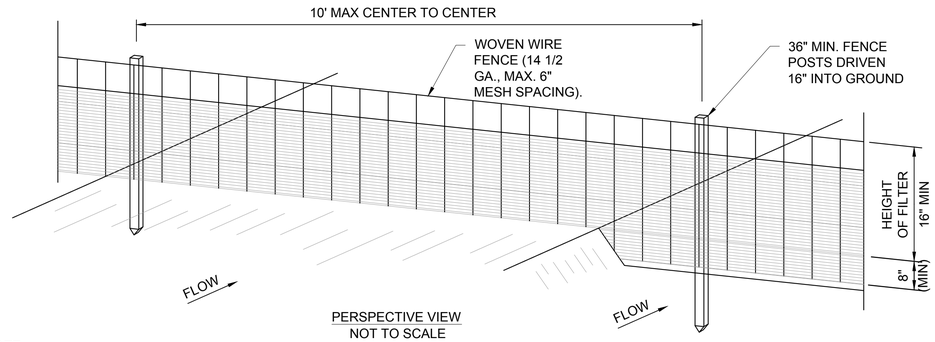
PLAN



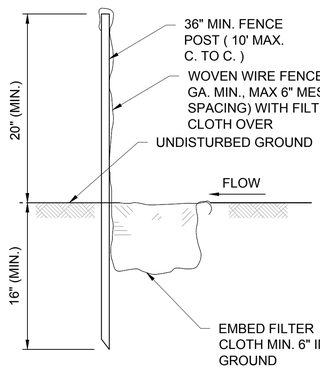
NOTES:

1. SEED AND SOIL AMENDMENTS SHALL BE APPLIED ACCORDING TO THE RATES IN THE PLAN DRAWINGS PRIOR TO INSTALLING THE BLANKET.
2. PROVIDE ANCHOR TRENCH AT TOE OF SLOPE IN SIMILAR FASHION AS AT TOP OF SLOPE.
3. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS, AND GRASS.
4. BLANKET SHALL HAVE GOOD CONTINUOUS CONTACT WITH UNDERLYING SOIL THROUGHOUT ENTIRE LENGTH. LAY BLANKET LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH SOIL. DO NOT STRETCH BLANKET.
5. THE BLANKET SHALL BE STAPLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
6. BLANKETED AREAS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT UNTIL PERENNIAL VEGETATION IS ESTABLISHED TO A MINIMUM UNIFORM 70% COVERAGE THROUGHOUT THE BLANKETED AREA. DAMAGED OR DISPLACED BLANKETS SHALL BE RESTORED OR REPLACED WITHIN 4 CALENDAR DAYS.

EROSION CONTROL BLANKET — 3 / C102
NOT TO SCALE



PERSPECTIVE VIEW
NOT TO SCALE



NOTES:

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER- LAPPED BY SIX INCHES AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

POSTS:	STEEL EITHER "T" OR "U" TYPE OR 2" HARDWOOD.
FENCE:	WOVEN WIRE 14 1/2 GA. 6" MAX. MESH OPENING.
FILTER CLOTH:	FILTER X, MIRAFI 100X, STABILINKA T140N OR APPROVED EQUAL.
PREFABRICATED UNIT:	GEOFAB, ENVIROFENCE, OR APPROVED EQUAL.

SILT FENCE — 5 / C102
NOT TO SCALE

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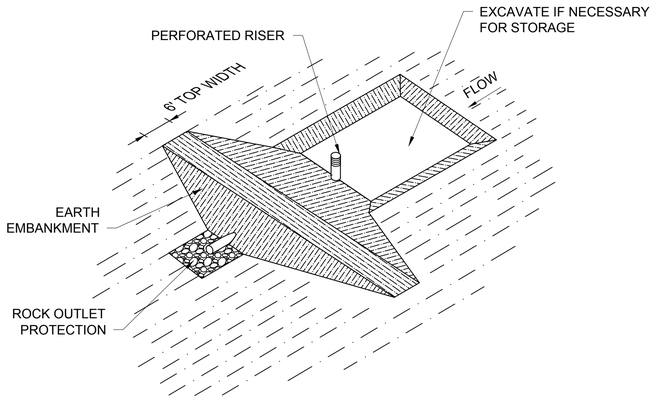
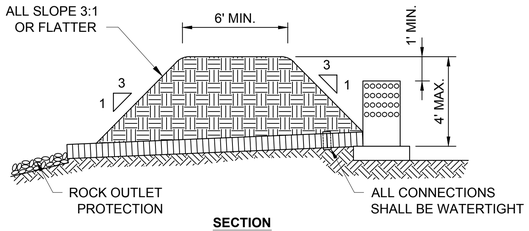
THE NORTHERN PASS
Transmission Business
#
DEERFIELD SUBSTATION
EROSION AND SEDIMENTATION CONTROL DETAILS
DATE: 10/1/2015
SCALE: NTS
DES: LRM | CHK: RLR
DRW: FP | APR: BSS
TOWN: DEERFIELD, NH
TRANSMISSION LINE:
MILE NO:
SHEET 11 OF 19
NPTT611-C501
REVISION: 11/10/2013

\\BMCD\DFS\CLIENTS\TND\NUSC\58466_NPT\DESIGN\SUBSTATION\600-DEERFIELD\CADD\CIVIL-SITE\NPTT611-C501.DWG 10/5/2015 9:15 AM KAMARX



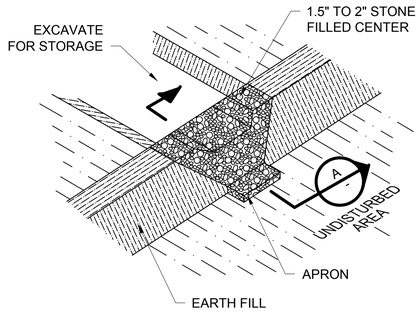
ISOMETRIC VIEW



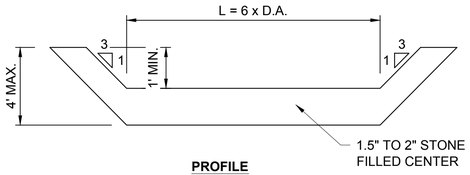
SECTION

PIPE OUTLET SEDIMENT TRAP 1 C102

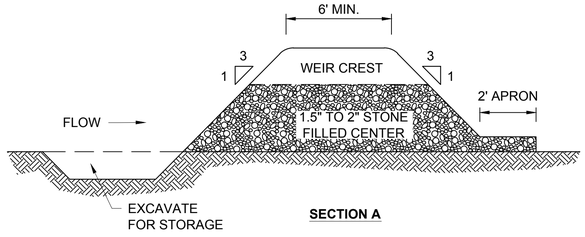
NOT TO SCALE



ISOMETRIC VIEW



PROFILE



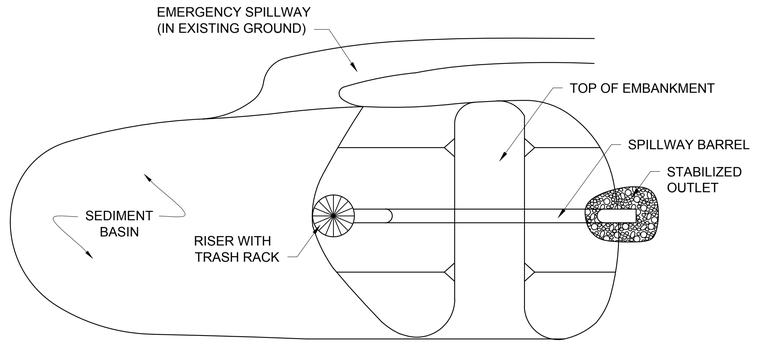
SECTION A

STONE OUTLET SEDIMENT TRAP 2 C102

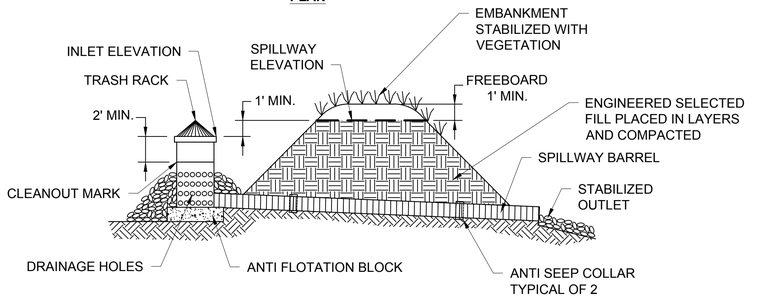
NOT TO SCALE

NOTES:

1. REQUIRED FOR DISTURBED AREAS GREATER THAN 5 ACRES WITHIN A DRAINAGE AREA LESS THAN 100 ACRES.
2. SEDIMENT BASIN WILL BE REMOVED WITHIN 3 YEARS.



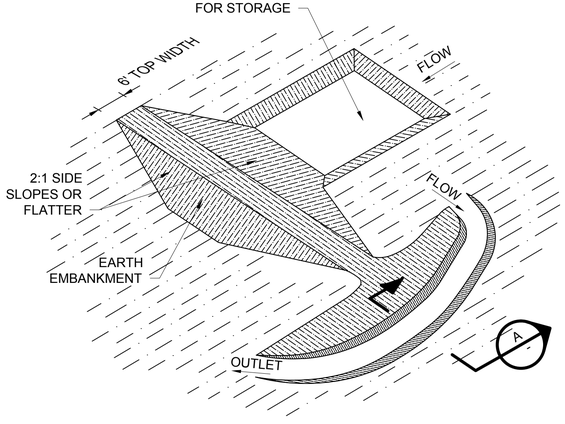
PLAN



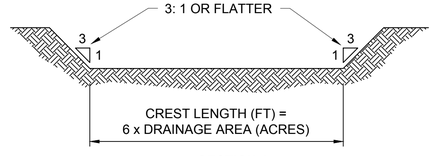
SECTION

TYPICAL SEDIMENT BASIN 3 C102

NOT TO SCALE

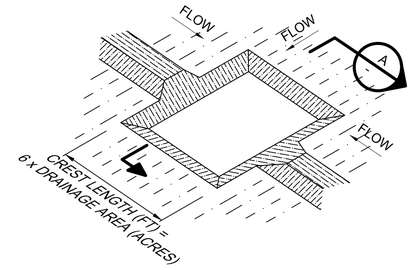


ISOMETRIC VIEW

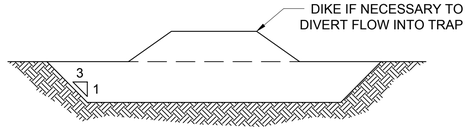


SECTION A

EMBANKMENT



ISOMETRIC VIEW

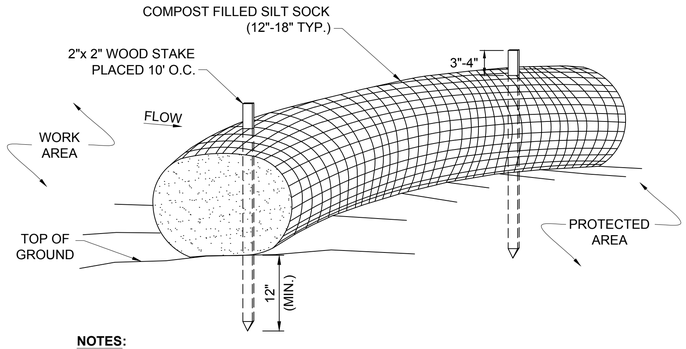


SECTION A

EXCAVATED

EARTH OUTLET SEDIMENT TRAP 4 C102

NOT TO SCALE



NOTES:

1. SILT SOCK SHALL BE FILTREXX™ SILTSOXX™ OR APPROVED EQUIVALENT.
2. SEE SPECIFICATIONS FOR SOCK SIZE AND COMPOST FILL REQUIREMENTS.
3. SILT SOCK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS, AND REPAIR OR REPLACEMENT SHALL BE PERFORMED AS NEEDED.
4. COMPOST MATERIAL SHALL BE DISPERSED ON SITE, AS DETERMINED BY THE QUALIFIED PROFESSIONAL.

SILT SOCK 5 C102

NOT TO SCALE

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THE NORTHERN PASS
Transmission Business

DEERFIELD SUBSTATION
EROSION AND SEDIMENTATION CONTROL DETAILS

DATE: 10/1/2015
SCALE: N.T.S.

DES: LRM | CHK:RLR
DRW: FP | APR: BSS
TOWN: DEERFIELD, NH
TRANSMISSION LINE:
MILE NO:
SHEET 12 OF 19
NPTT612-C502

REVISION: 11/10/2013

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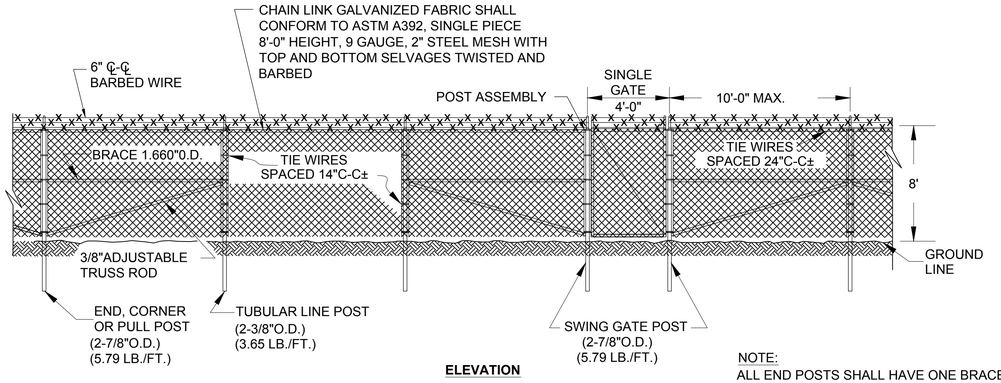
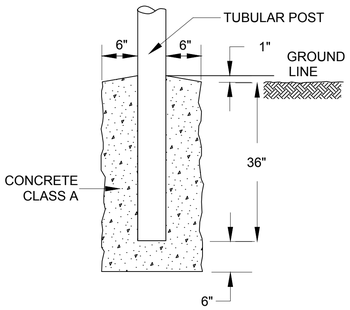


ELEVATION

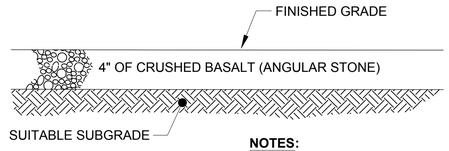
NOTE:
ALL END POSTS SHALL HAVE ONE BRACE
ALL CORNER AND INTERMEDIATE BRACE OR PULL POSTS SHALL HAVE TWO BRACES, WITH A MAXIMUM SPACING OF BETWEEN POST ASSEMBLIES OF 500 FEET.

ELEVATION



FOOTING DETAIL

SECURITY FENCE — 2
NOT TO SCALE — C100

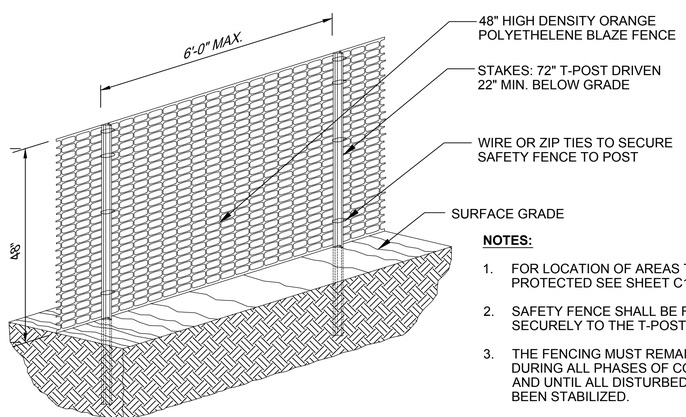


SUBSTATION AND ACCESS ROAD SURFACE STONE GRADATION	
SIEVE	PERCENT BY WEIGHT PASSING SQUARE MESH SIEVE
1-1/2 INCH	100
1 INCH	93-100
1/2 INCH	27-58
1/4 INCH	0-8

NOTES:

1. REMOVE ALL LOAM, CLAY, MUCK, STUMPS, AND OTHER IMPROPER ROAD FOUNDATION MATERIAL WITHIN 2' OF SUBGRADE. REPLACE WITH COMPACTED GRANULAR FILL MATERIAL ACCEPTABLE TO APPROVING AGENCY. COMPACTION TO BE AT LEAST 95% OF STANDARD PROCTOR.
2. SUBSTATION SURFACE STONE SHALL EXTEND 3-FT OUTSIDE THE SUBSTATION PERIMETER FENCE.
3. GRAVEL ACCESS ROADS SHALL HAVE AT LEAST 8 INCHES OF PROCESSED AGGREGATE BASE.

SUBSTATION AND ACCESS ROAD GRAVEL SURFACE SECTION — 3
NOT TO SCALE — C100, C101-C104



NOTES:

1. FOR LOCATION OF AREAS TO BE PROTECTED SEE SHEET C102.
2. SAFETY FENCE SHALL BE FASTENED SECURELY TO THE T-POSTS.
3. THE FENCING MUST REMAIN IN PLACE DURING ALL PHASES OF CONSTRUCTION AND UNTIL ALL DISTURBED AREAS HAVE BEEN STABILIZED.

CONSTRUCTION FENCE — 4
NOT TO SCALE — C102

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DEERFIELD SUBSTATION
CONSTRUCTION DETAILS

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TOWN: DEERFIELD, NH
TRANSMISSION LINE:
MILE NO:
SHEET 13 OF 19
NPT613-C503
REVISION: 11/10/2013

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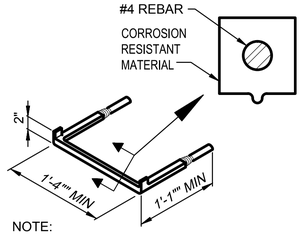
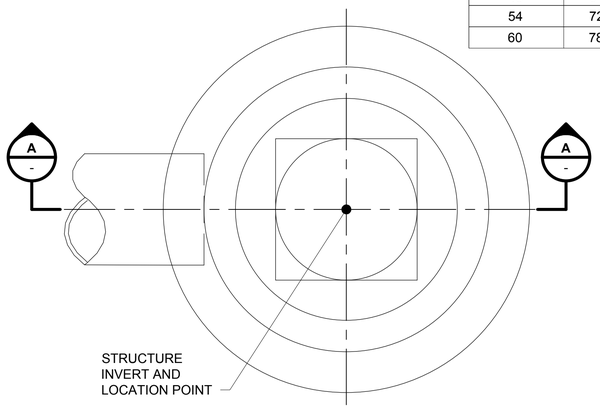
DIAMETER	WALL THICKNESS (MIN.)	FLOOR THICKNESS (MIN.)
4'	5"	6"
5'	6"	8"
6'	7"	8"
8'	9"	10"

CORE HOLE SIZE				
PIPE SIZE	RCP CORE HOLE DIA.		PLASTIC CORE HOLE DIA.	
INCHES	INCHES	FEET	INCHES	FEET
6			7	0.6
12	18	1.5	18	1.5
15	22	1.8	20	1.7
18	26	2.2	24	2.0
24	34	2.8	32	2.7
30	42	3.5	42	3.5
36	48	4.0	48	4.0
42	54	4.5	54	4.5
48	64	5.3	64	5.3
54	72	6.0		
60	78	6.5		

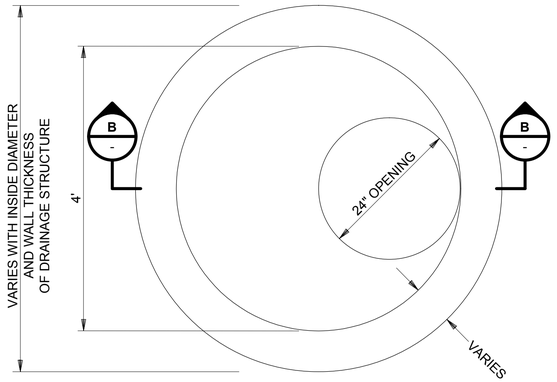


NOTE:
No. 4 REBAR ENCASED IN CORROSION RESISTANT RUBBER OR OTHER MATERIAL APPROVED BY THE OWNER'S REPRESENTATIVE.

MANHOLE STEP 3
NOT TO SCALE -



PLAN



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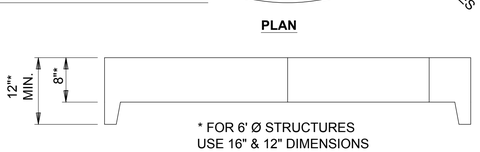
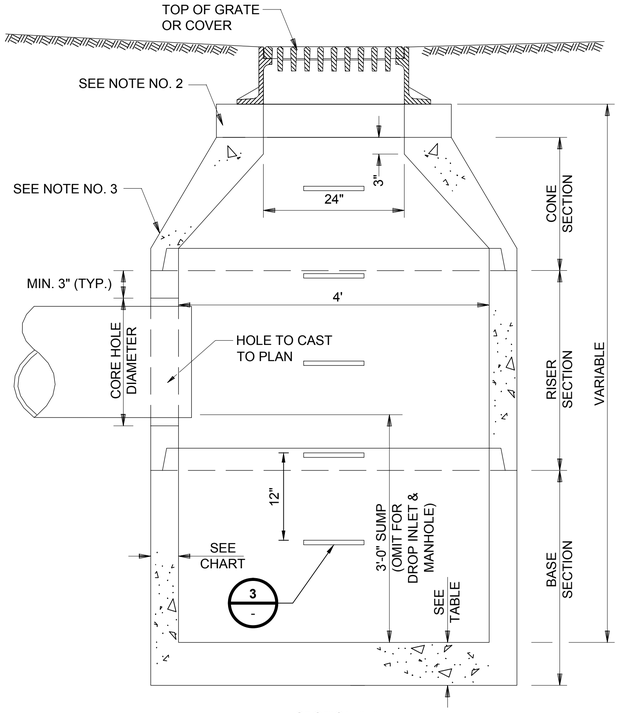


* FOR 6' Ø STRUCTURES
USE 16" & 12" DIMENSIONS

SECTION B-B

FLAT SLAB TOP

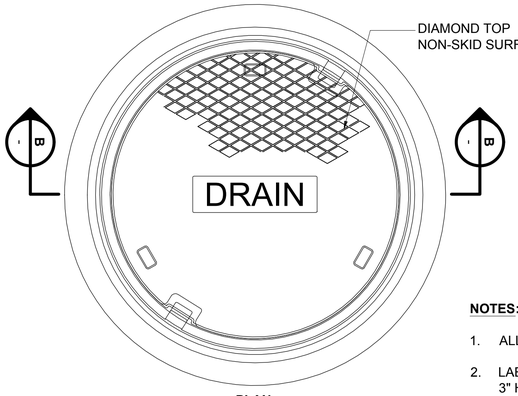


SECTION A-A

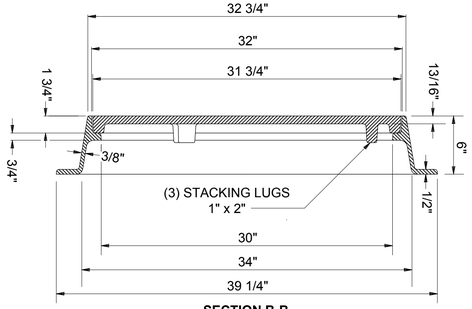
GENERAL NOTES:

1. CATCH BASIN TO CONFORM TO NH DOT SECTION 604.1 REQUIREMENTS.
2. FITTING FRAME TO GRADE MAY BE DONE WITH PREFABRICATED ADJUSTMENT RINGS OR CLAY BRICKS (2 COURSES MAX.).
3. CONE SECTIONS MAY BE EITHER CONCENTRIC OR ECCENTRIC, OR FLAT SLAB TOPS MAY BE USED WHERE PIPE WOULD OTHERWISE ENTER INTO THE CONE SECTION OF THE STRUCTURE AND WHERE PERMITTED.
4. PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
5. OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL OF STRUCTURE.
6. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4" HIGH AT AN 11° ANGLE CENTERED IN THE WIDTH OF THE WALL AND SHALL BE ASSEMBLED USING AN APPROVED FLEXIBLE SEALANT IN JOINTS.
7. ALL STRUCTURES WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 12" OF INSIDE SURFACE BETWEEN HOLES, NO MORE THAN 75% OF A HORIZONTAL CROSS-SECTION SHALL BE HOLES, AND THERE SHALL BE NO HOLES CLOSER THAN 3" TO JOINTS.

PRECAST CONCRETE MANHOLE AND CATCH BASIN 1
NOT TO SCALE C104



PLAN

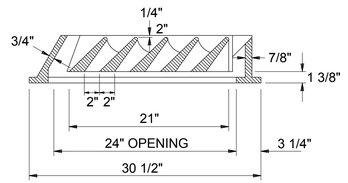


SECTION B-B

NOTES:

1. ALL DIMENSIONS ARE NOMINAL.
2. LABEL TYPE OF MANHOLE WITH 3" HIGH LETTERS IN THE CENTER OF THE COVER.

MANHOLE FRAME AND COVER 2
NOT TO SCALE C104



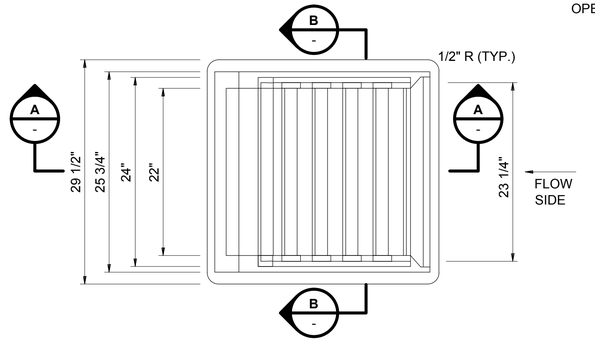
SECTION A-A

NOTES:

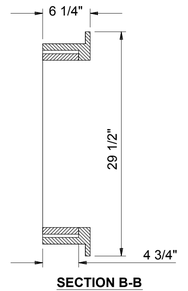
1. ALL DIMENSIONS ARE NOMINAL.
2. FREE OPEN AREA = 1.80 S.F.

PIPE DIAMETER INCHES	THROAT DEPTH "A"INCHES	
	ONE THROAT	ONE THROAT
12"	8"	8"
15"	8"	8"
18"	16"	8"
24"	18"	16"

IN A SERIES OF CONNECTING C.B.'S OR D.I.'S, THE OUTLET PIPES MAY INCREASE IN DIAMETER, BUT THE SURFACE THROAT OPENINGS ARE NOT AFFECTED.



PLAN



SECTION B-B

TYPE "E" GRATE 4
NOT TO SCALE C104

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SHEET 14 OF 19
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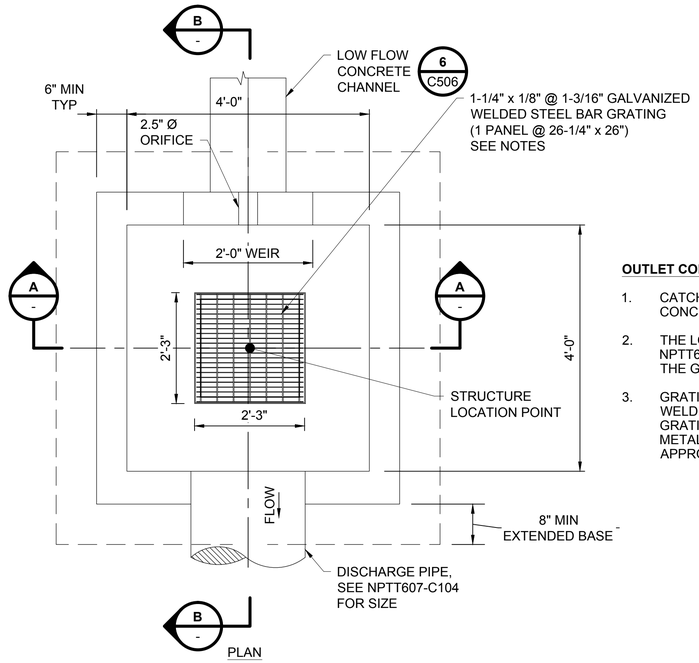
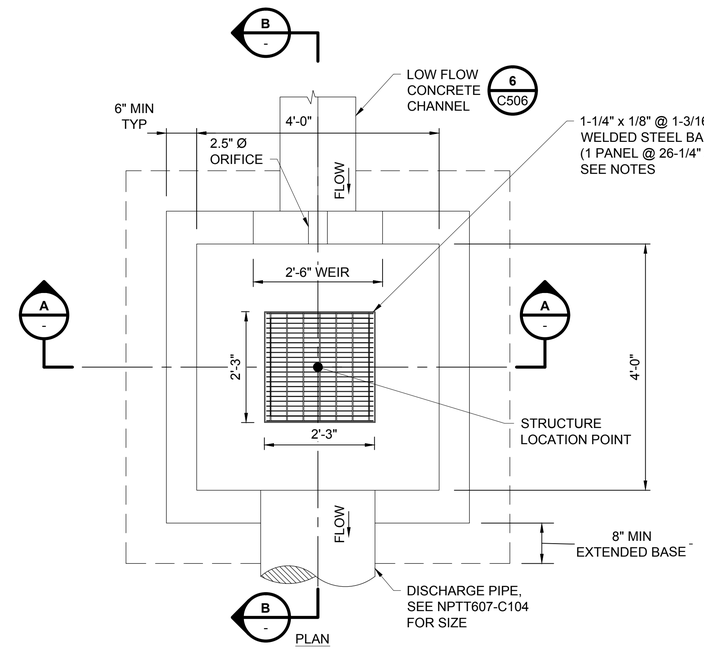
\\BMCD\DFS\CLIENTS\TND\NUSC\58466_NPT\DESIGN\SUBSTATION\600-DEERFIELD\CADD\CIVIL-SITE\NPTT614-C504.DWG 10/5/2015 9:05 AM KAMARX



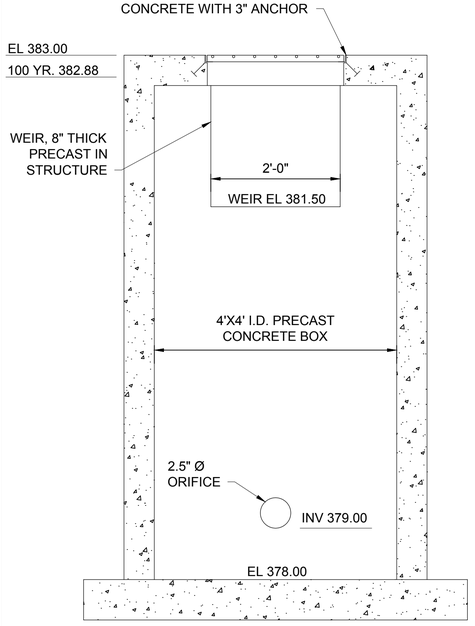
OUTLET CONTROL STRUCTURE NOTES:

1. CATCH BASIN STRUCTURE IS TO BE PRECAST CONCRETE.
2. THE LOCATION AND ELEVATION INDICATED ON NPTT607-C104 ARE AT THE TOP CENTER OF THE GRATE.
3. GRATING SHALL BE AMICO STANDARD WELDED TYPE "W" 19W4 RESISTANCE WELDED GRATING AS MANUFACTURED BY ALABAMA METAL INDUSTRIES CORP. OR ENGINEERING APPROVED EQUAL.

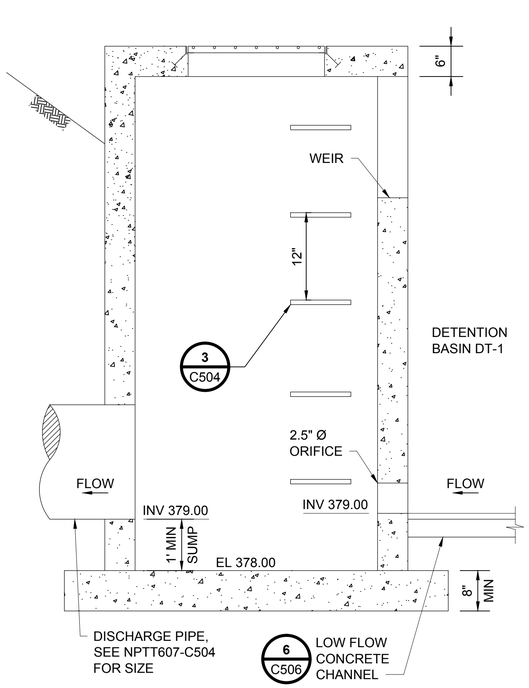


OUTLET CONTROL STRUCTURE NOTES:

1. CATCH BASIN STRUCTURE IS TO BE PRECAST CONCRETE.
2. THE LOCATION AND ELEVATION INDICATED ON NPTT607-C104 ARE AT THE TOP CENTER OF THE GRATE.
3. GRATING SHALL BE AMICO STANDARD WELDED TYPE "W" 19W4 RESISTANCE WELDED GRATING AS MANUFACTURED BY ALABAMA METAL INDUSTRIES CORP. OR ENGINEERING APPROVED EQUAL.

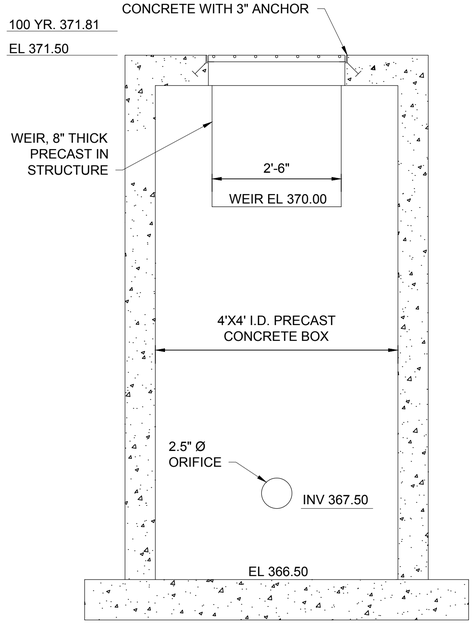


SECTION A-A

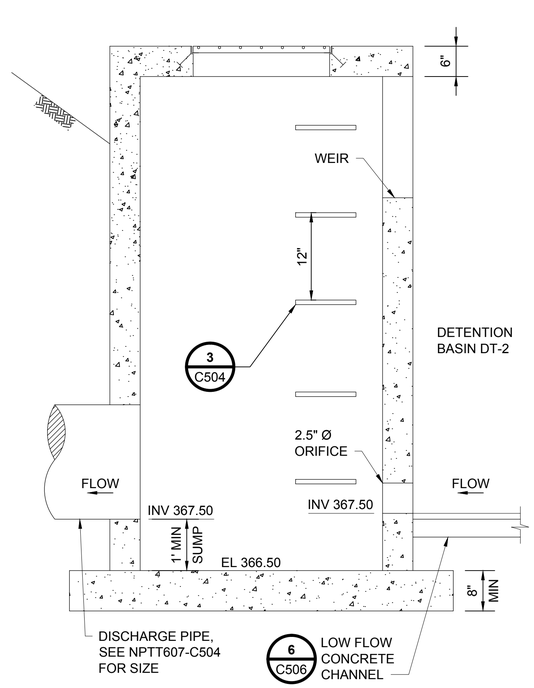


SECTION B-B

OCS-1
OUTLET CONTROL STRUCTURE (1 / C104)
NOT TO SCALE



SECTION A-A



SECTION B-B

OCS-2
OUTLET CONTROL STRUCTURE (2 / C204)
NOT TO SCALE

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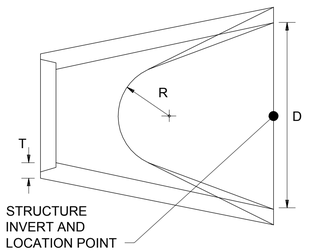
DEERFIELD SUBSTATION
CONSTRUCTION DETAILS

DATE: 10/1/2015
SCALE: NTS

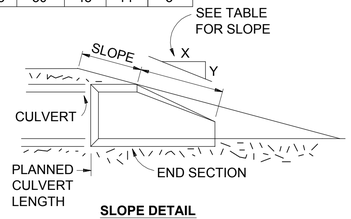
DES: LRM	CHK:RLR
DRW: FP	APR: BSS

TOWN: DEERFIELD, NH
TRANSMISSION LINE:
MILE NO:
SHEET 15 OF 19
NPTT615-C505
REVISION: 11/10/2013

ITEM NO.	PIPE DIA.	APPROX. SLOPE X to Y	A	B	C	D	R	T
603.30118	18"	3 TO 1	9"	27"	46"	36"	12"	2.5"
603.30124	24"	3 TO 1	9.5"	43.5"	30"	48"	14"	3"



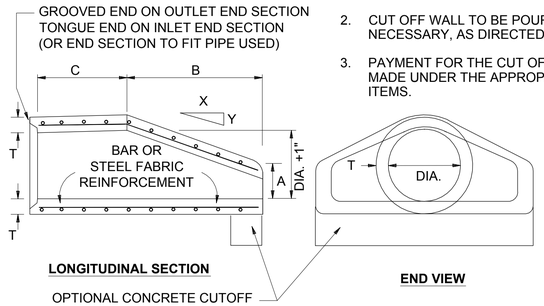
PLAN



SLOPE DETAIL

NOTES:

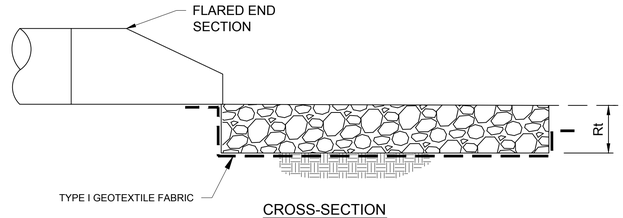
1. DESIGN OF END SECTION SHALL CONFORM TO STANDARD REINFORCED CONCRETE PIPE.
2. CUT OFF WALL TO BE POURED IN FIELD, IF NECESSARY, AS DIRECTED BY THE ENGINEER.
3. PAYMENT FOR THE CUT OFF WALL WILL BE MADE UNDER THE APPROPRIATE CONTRACT ITEMS.



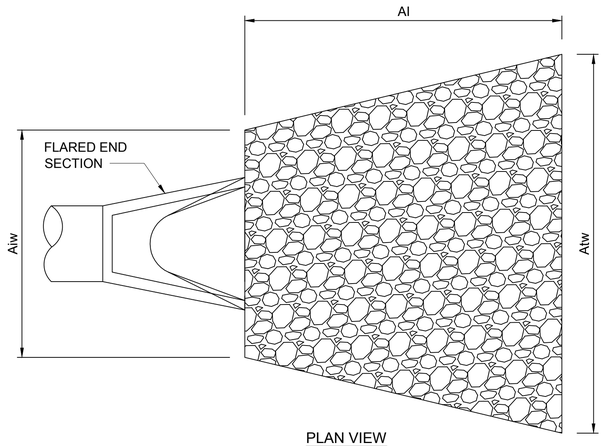
LONGITUDINAL SECTION

END VIEW

CONCRETE END SECTION FOR REINFORCED CONCRETE PIPE — 1 / C104
NOT TO SCALE



CROSS-SECTION



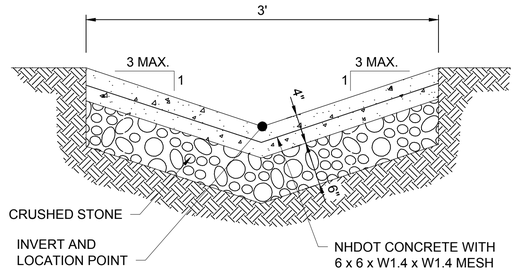
PLAN VIEW

NOTES:

1. THE SUBGRADE FOR GEOTEXTILE FABRIC AND RIP-RAP SHALL BE PREPARED TO THE LINES AND GRADES SHOWN.
2. THE ROCK USED FOR RIP-RAP SHALL CONFORM TO NHDOT CLASS C STONE.
3. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE ROCK RIP-RAP. DAMAGED AREAS IN THE FABRIC SHALL BE PREPARED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
4. STONE FOR THE RIP-RAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.

OUTLET NO.	PIPE DIA Pd (IN)	RIP RAP SIZE D_{50} (IN)	RIP RAP THICK. Rt (IN)	APRON LENGTH Al (FT)	APRON INITIAL WIDTH Aiw (FT)	APRON TERMINAL WIDTH Atw (FT)
LOW FLOW PIPE	4	6	18	6	1.0	4
FES-1	18	6	18	13	4.5	18
FES-2	12	6	18	9	4.0	12
FES-3	18	16	48	19	4.5	25
FES-4	24	10	30	24	4.0	30
SWALE SW-1C	-	6	18	34	7.5	21

OUTLET PROTECTION — 2 / C104
NOT TO SCALE



LOW FLOW CONCRETE CHANNEL (LFC) — 6 / C100, C104
NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

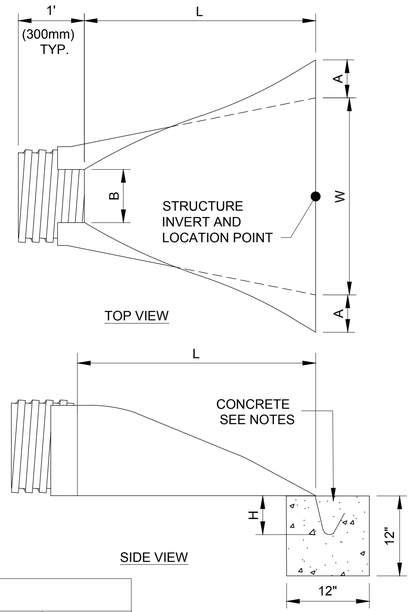
PREPARE BEDDING:
BACKFILL MATERIAL AROUND THE END SECTION MAY BE THE SAME AS THE MATERIAL AROUND THE PIPE, PLACE A FEW INCHES OF BACKFILL MATERIAL IN THE TRENCH OR DITCH WHERE THE END SECTION WILL BE PLACED. COMPACT AND CONTOUR THIS BEDDING MATERIAL TO GENERALLY MATCH THE END SECTION, EXCAVATE AN AREA IN THE BEDDING WHERE TOE TROUGH WILL SEAT SO THAT THE END SECTION WILL BE LEVEL WITH THE BOTTOM OF THE TRENCH OR DITCH IN THE FINISHED INSTALLATION.

PLACE END SECTION OF PIPE:
OPEN THE END SECTION COLLAR AND SEAT IT OVER THE TWO PIPE CONNECTIONS. ONCE THE END SECTION IS POSITIONED, CHECK TO MAKE SURE THAT THE INVERT OF THE END SECTION MATCHES THE INVERT OF THE PIPE AND THAT THE END SECTION IS LEVEL WITH THE TRENCH OR DITCH BOTTOM.

SECURE THE END SECTION:
SLIP THE STAINLESS STEEL ROD THROUGH THE PRE-DRILLED HOLES AT THE TOP OF THE COLLAR. THE ROD SHOULD BE BETWEEN THE CROWNS OF THE TWO PIPE CONNECTIONS. PLACE A WASHER ON EITHER END OF THE ROD. PLACE A NUT ON EITHER END OF THE ROD AND TIGHTEN WITH A WRENCH.

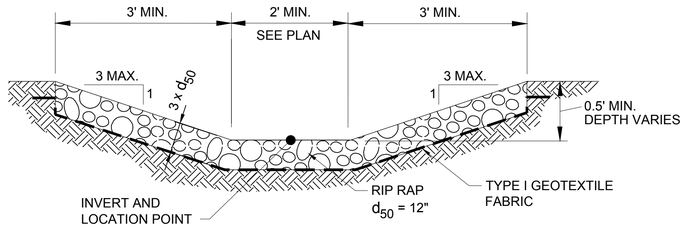
SECURE THE TOE TROUGH:
TO PREVENT WASHOUTS FROM HIGH VELOCITY FLOW, IT IS RECOMMENDED THAT THE TROUGH BE SECURED WITH CONCRETE. POUR CONCRETE IN THE TROUGH UP TO THE LEVEL OF THE TRENCH OR DITCH BOTTOM AND ALONG THE ENTIRE LENGTH OF THE TROUGH.

FINISH BACKFILL:
SHOVEL BACKFILL AROUND THE END SECTION IN 6 TO 9 INCH LAYERS EQUALLY ON BOTH SIDES, KNIFING IT TO ELIMINATE VOIDS. TAMP WITH A SMALL-FACED COMPACTOR OR OTHER EQUIPMENT SUITABLE FOR SMALL AREAS. CONTINUE PLACING, KNIFING, AND COMPACTING BACKFILL LAYERS TO THE TOP OF THE END SECTION TO SEAT IT WELL INTO THE BACKFILL.

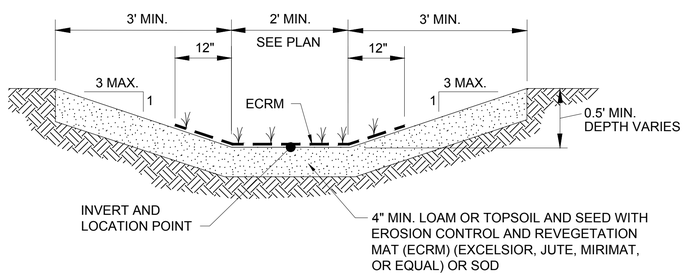


DIMENSIONS, INCHES (mm)						
PIPE DIAMETER	PART NO.	A, ±1 (25)	B MAX	H, ±1 (25)	L, ±1/2 (13)	W, ±2 (50)
12", 15" (300,375)	1210 NP	6.5 (165)	10 (254)	6.5 (165)	25 (635)	29 (736)
24" (600)	2410 NP	7.5 (190)	18 (450)	6.5 (165)	36 (900)	45 (1140)

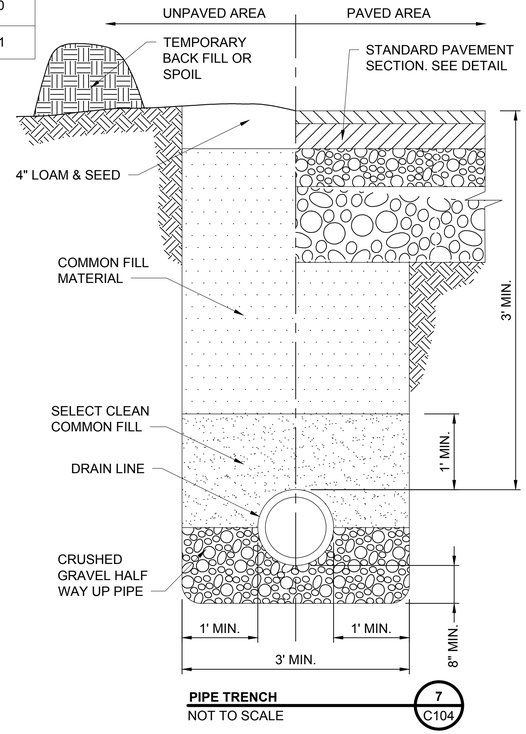
END SECTION FOR HDPE — 3 / C104
NOT TO SCALE



RIPRAP DITCH CROSS SECTION — 4 / C100
NOT TO SCALE



GRASS DITCH CROSS SECTION — 5 / C100
NOT TO SCALE



PIPE TRENCH — 7 / C104
NOT TO SCALE

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DEERFIELD SUBSTATION
CONSTRUCTION DETAILS

DATE: 10/1/2015
SCALE: NTS

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DRW: FP | APR: BSS
TOWN: DEERFIELD, NH
TRANSMISSION LINE:
MILE NO:
SHEET 16 OF 19
NPTT616-C506

REVISION: 11/10/2013

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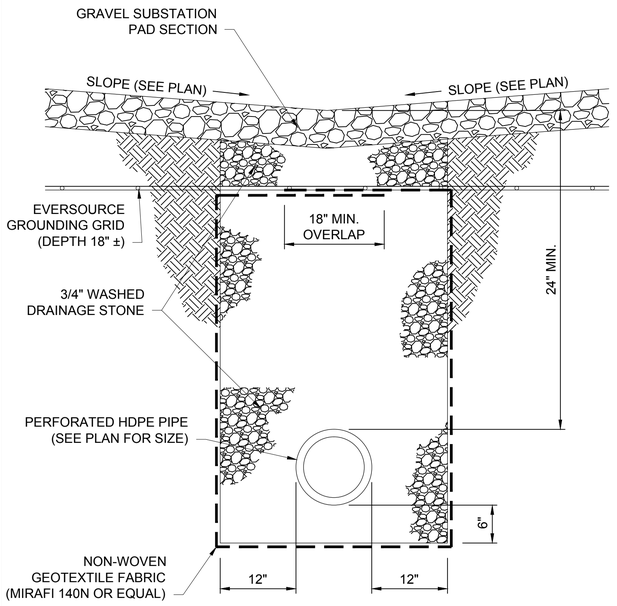
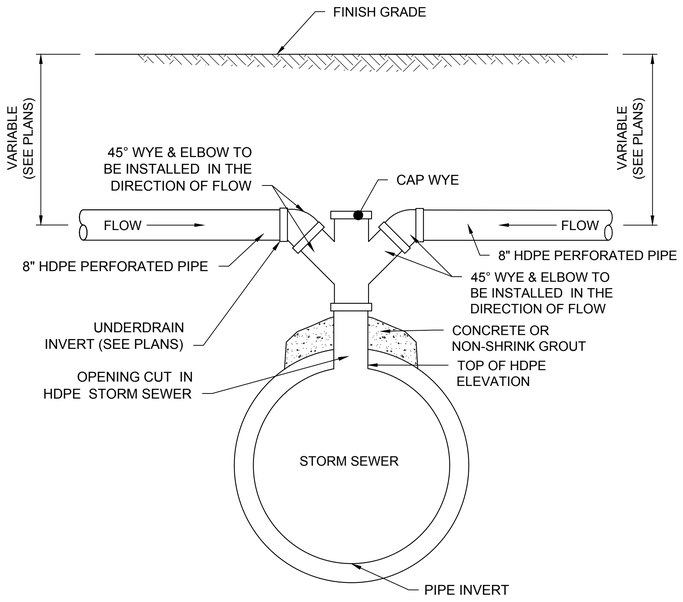


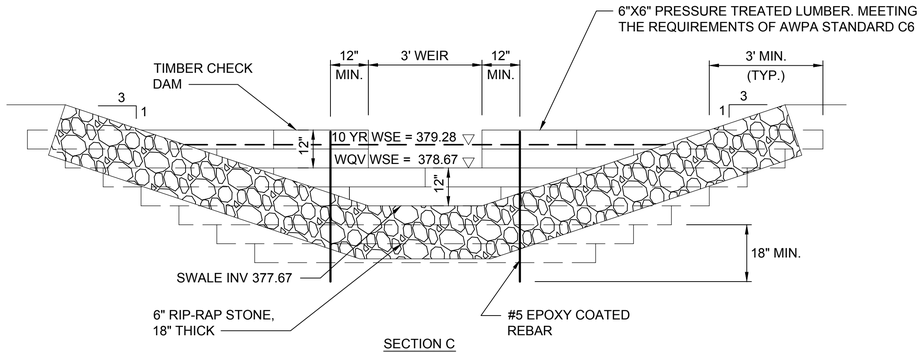
FRENCH DRAIN (1 / C104)
NOT TO SCALE



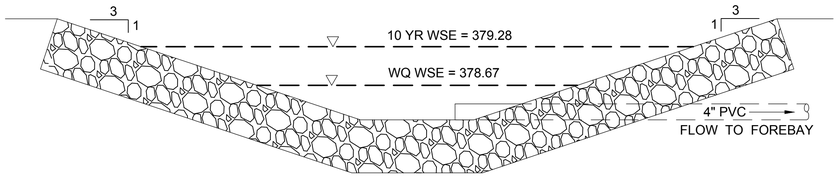
NOTES:

1. STANDARD MANUFACTURER FITTINGS SHALL BE USED TO CONNECT VERTICAL UNDERDRAINS TO 8" HDPE UNDERDRAINS AND OUTLET PIPES.
2. INVERTS FROM OPPOSITE DIRECTIONS MAY NOT BE AT THE SAME ELEVATIONS AS SHOWN IN DETAIL. REFER TO THE PLANS FOR INVERT ELEVATIONS.

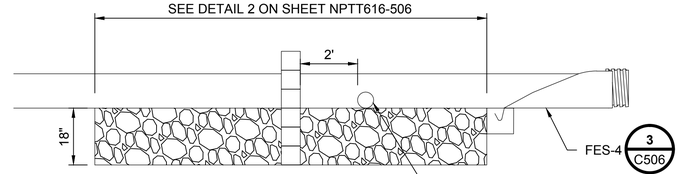
UNDERDRAIN CLEANOUT CONNECTION TO STORM DRAIN PIPE (3 / C104)
NOT TO SCALE



SECTION C

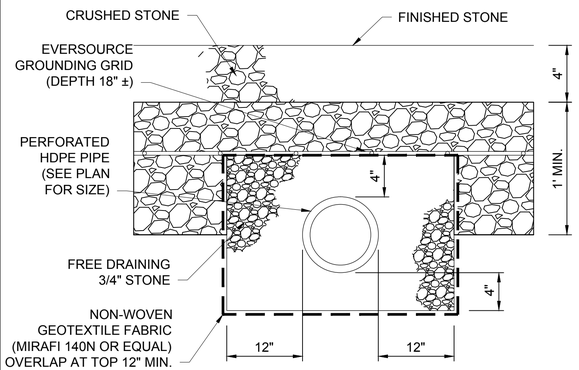


SECTION D

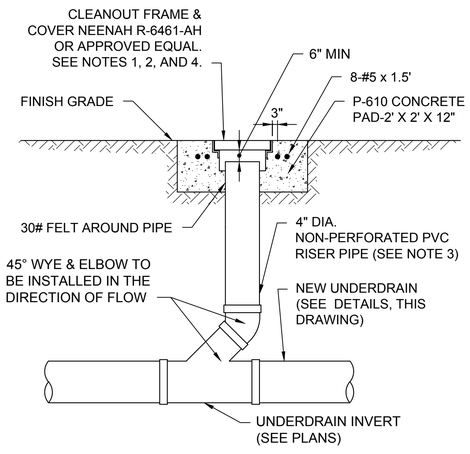


NOTES:

1. DO NOT COAT 6"x6" TIMBER WITH CREOSOTE.
2. EMBEDMENT DEPTH OF TIMBER SHALL BE A MINIMUM OF 3 FEET INTO SIDE SLOPES.



UNDERDRAIN (2 / C104, C509)
NOT TO SCALE

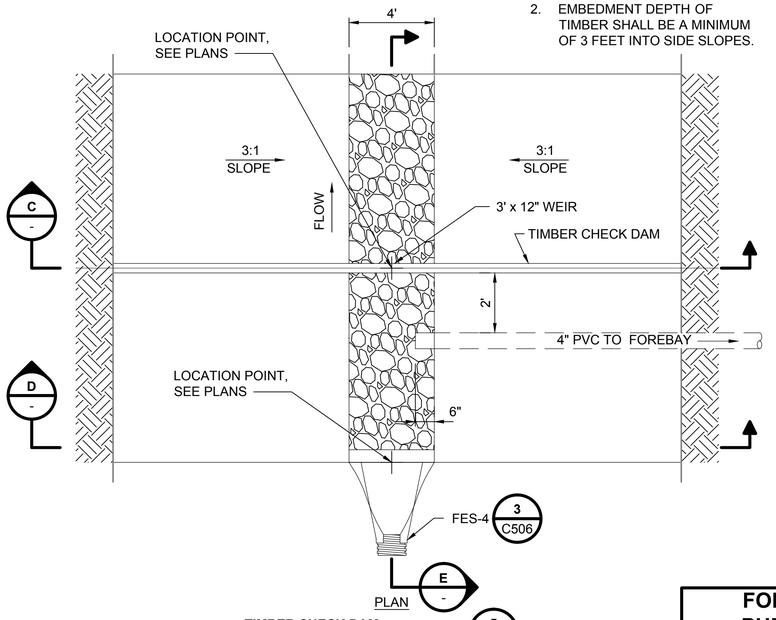


NOTES:

1. CLEANOUT FRAME AND COVER SHALL BE DUCTILE IRON DESIGNED TO HS-20 LOADINGS.
2. NO LOAD SHALL BE TRANSFERRED FROM CLEANOUT FRAME AND COVER TO 4" PVC UNDERDRAIN CLEANOUT OR 6" COLLECTION STRUCTURE.
3. STANDARD MANUFACTURER FITTINGS SHALL BE USED TO CONNECT VERTICAL UNDERDRAINS TO 6" HDPE UNDERDRAINS AND OUTLET PIPES.
4. ALL UNDERDRAIN CLEANOUT AND COLLECTION STRUCTURE COVERS SHALL BE BOLT DOWN TYPE.
5. INVERTS FROM OPPOSITE DIRECTIONS MAY NOT BE AT THE SAME ELEVATIONS AS SHOWN IN DETAIL REFER TO THE PLANS FOR INVERT ELEVATIONS.

UNDERDRAIN CLEANOUT (4 / C104)
NOT TO SCALE

SECTION E



TIMBER CHECK DAM (5 / C105)
NOT TO SCALE

BRIAN J. SAKOWICH No. 14328 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE

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MILE NO:
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NPTT617-C507
REVISION: 11/10/2013

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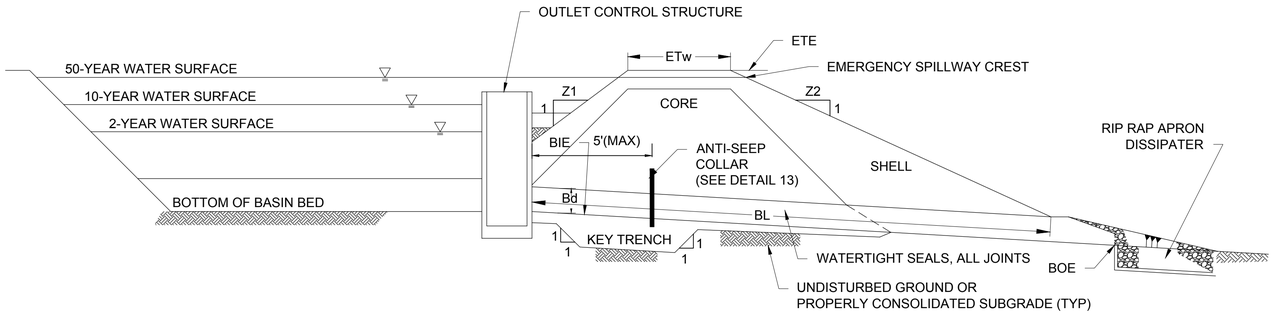
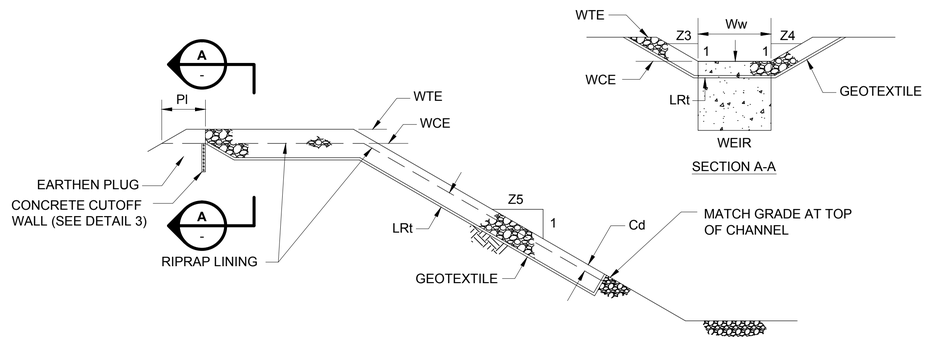


BASIN NO.	WATER SURFACE ELEVATION 2 YEAR	10 YEAR	50 YEAR	BOTTOM BASIN ELEVATION	Z1 (FT)	Z2 (FT)	BARREL DIA Bd (IN)	INLET ELEV BIE (FT)	MAT'L	LENGTH BL (FT)	OUTLET ELEV BOE (FT)	EMBANKMENT TOP ELEV ETE (FT)	TOP WIDTH ETw (FT)	CREST (FT)
DT-1	380.56	381.61	382.36	380.00	3	3	18	379.00	CLASS III RCP	53	378.00	384.00	6	383.00
DT-2	369.78	370.47	371.36	368.00	3	3	24	367.50	CLASS III RCP	31	367.25	373.00	6	372.00

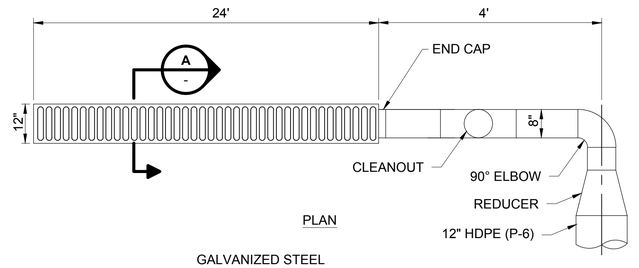
DETENTION BASIN CROSS SECTION — NOT TO SCALE — 1 / C104

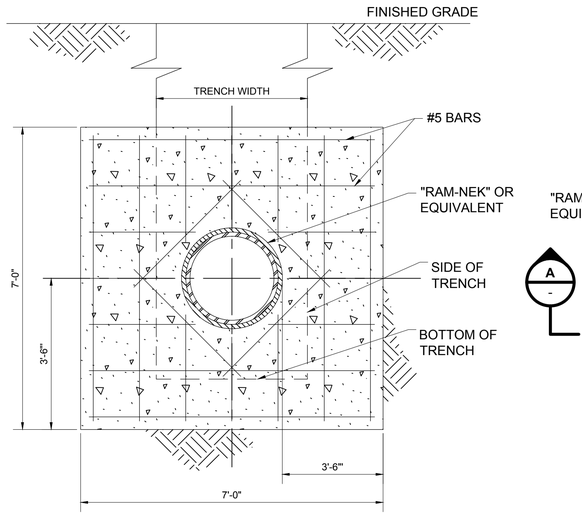


SECTION A-A

BASIN NO.	WEIR Z3 (FT)	Z4 (FT)	TOP ELEV WTE (FT)	CREST ELEV WCE (FT)	WIDTH Ww (FT)	PI (FT)	LINING RIPRAP SIZE (d_{50})	RIPRAP THICK. LRt (IN)	CHANNEL Z5 (FT)	DEPTH Cd (FT)
DT-1	3	3	384.00	383.00	32	1	12	36	3	0.50
DT-2	3	3	373.00	372.00	32	1	12	36	3	0.50
SF-1	3	3	379.00	378.00	13	1	12	36	3	0.50

SECTION THROUGH SPILLWAY — NOT TO SCALE — 4 / C104

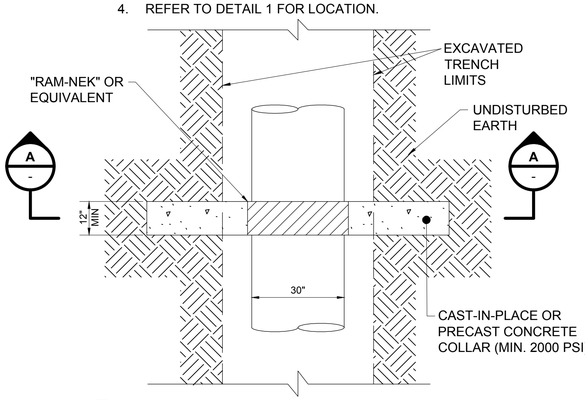




SECTION A-A

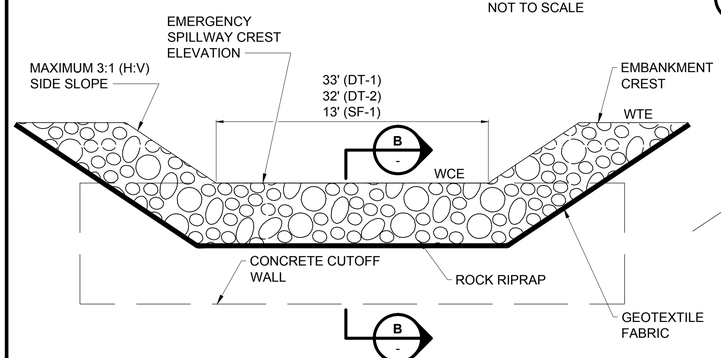
NOTES:

1. WRAP PIPE WITH "RAM-NEK" OR EQUIVALENT WHERE PIPE IS EXPOSED TO CONCRETE PRIOR TO POURING.
2. EXCAVATION & BACKFILL SHALL BE AS SPECIFIED.
3. DO NOT PLACE WITHIN 2 FEET OF A PIPE JOINT.
4. REFER TO DETAIL 1 FOR LOCATION.

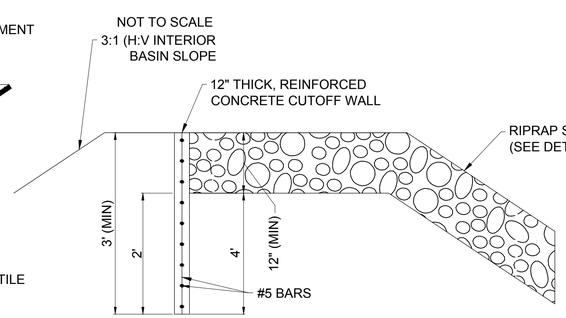


PLAN

ANTI SEEP COLLAR — NOT TO SCALE — 2 / C104

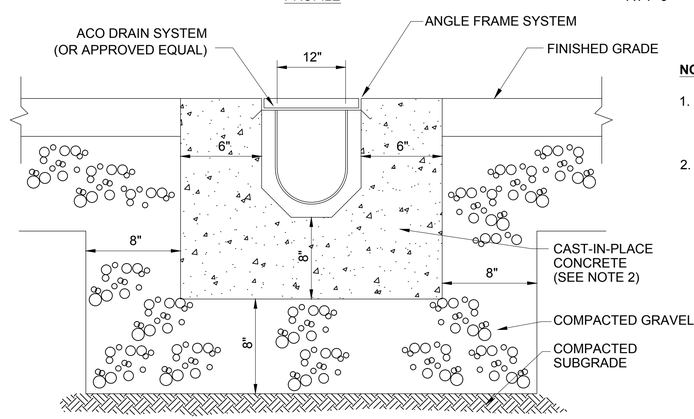


NOTES
1. SEE SECTION THROUGH SPILLWAY FOR FURTHER INFORMATION.



SECTION B-B

SPILLWAY APRON — NOT TO SCALE — 3 / C104



SECTION A-A

NOTES:

1. TRENCH DRAIN SHALL BE HEAVY DUTY TYPE DESIGNED FOR HS-20 LOADING.
2. CONCRETE SHALL BE COMPRESSIVE STRENGTH 4000 PSI, TYPE II CEMENT.

TRENCH DRAIN — NOT TO SCALE — 5 / C104

STATE OF NEW HAMPSHIRE — BRIAN S. SANDLOWICH — No. 14328 — LICENSED PROFESSIONAL ENGINEER

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DEERFIELD SUBSTATION
CONSTRUCTION DETAILS

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DES: LRM | CHK: RLR
DRW: FP | APR: BSS

TOWN: DEERFIELD, NH
TRANSMISSION LINE:
MILE NO:
SHEET 18 OF 19
NPTT618-C508

REVISION: 11/10/2013

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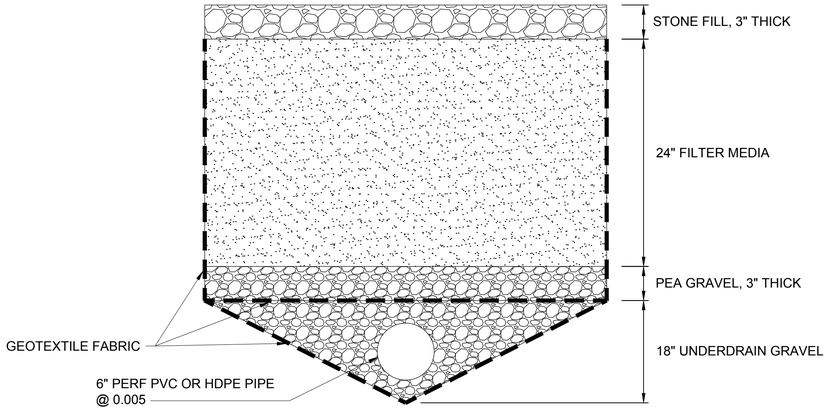
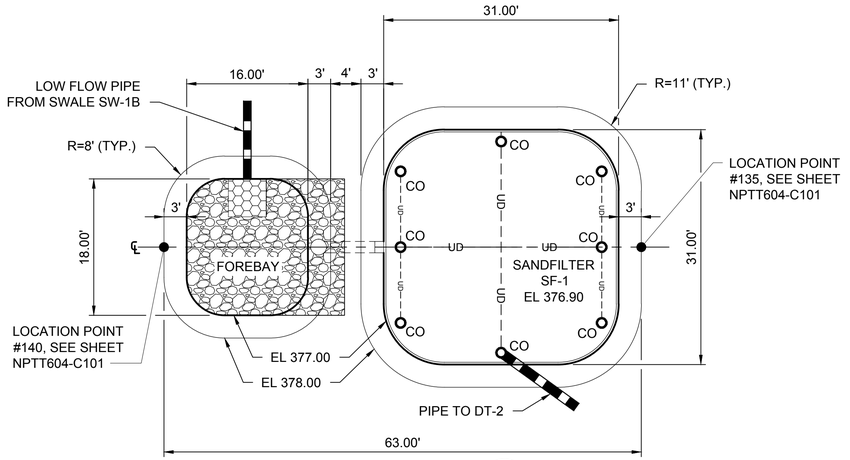


MATERIAL	SPECIFICATIONS / TEST METHOD	SIZE	NOTES
FILTER MIXTURE	NEW HAMPSHIRE FILTER MIXTURE A;		SAND SUBSTITUTIONS SUCH AS DIABASE AND GREYSTONE #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATED OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND.
	ASTM C-33 CONCRETE SAND - 50% TO 55% BY VOLUME	0.02" TO 0.04"	
	LOAMY SAND TOPSOIL - 20% TO 30% BY VOLUME	15% TO 25% PASSING SIEVE NO. 200 BY WEIGHT	
	MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH - 20% TO 30% BY VOLUME	< 5 PASSING SIEVE NO. 200 BY WEIGHT	
UNDERDRAIN PIPING	ASTM F758, TYPE PS28 OR AASHTO-M-278	6" RIGID SCHEDULE 40 PVC OR HDPE	3/8" PERFORATED @ 6" ON CENTER, 4 HOLES PER ROW, MINIMUM OF 3" OF GRAVEL OVER PIPES.
UNDERDRAIN GRAVEL	ASTM C-33	NO. 4 (0.75" TO 2")	CLEAN WASHED STONE
STONE FILL	ASTM C-33	NO. 57 (1" TO 0.187")	CLEAN WASHED STONE
PEA GRAVEL	ASTM D448	NO. 8 OR NO. 9 (3/8" TO 1/8")	CLEAN WASHED STONE
FILTER FABRIC	GEOTEXTILE	N/A	PE TYPE 1, NON WOVEN

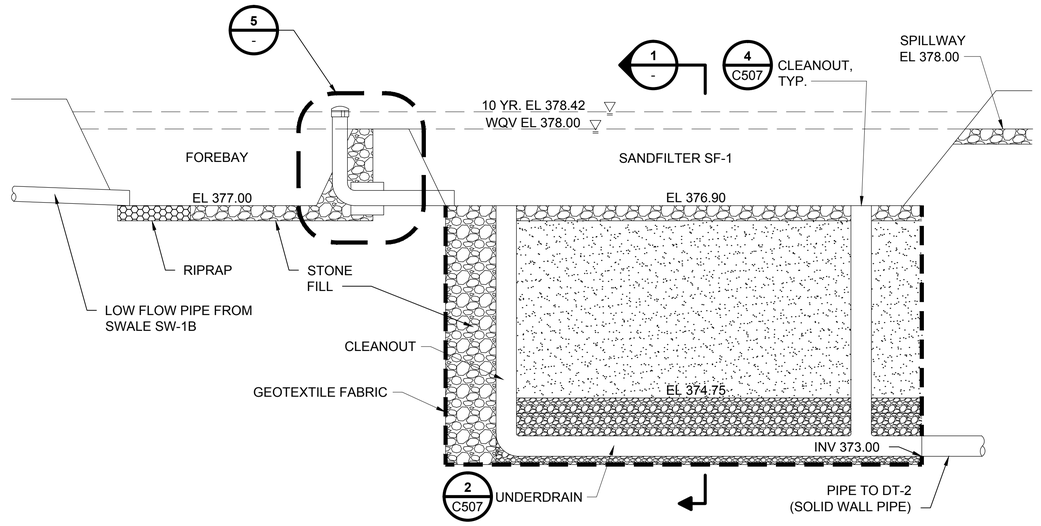
NOTES:

1. ABSOLUTELY NO RUNOFF IS TO ENTER THE SAND FILTER UNTIL ALL CONTRIBUTING DRAINAGE AREAS HAVE BEEN STABILIZED. SURFACE OF FILTER BED IS TO BE LEVEL.

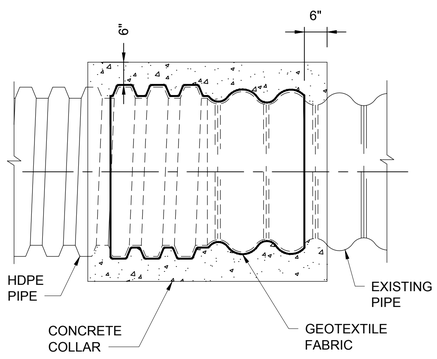
SAND FILTER — 1 / C104
NOT TO SCALE



FOREBAY / SAND FILTER LAYOUT — 2 / C104
NOT TO SCALE

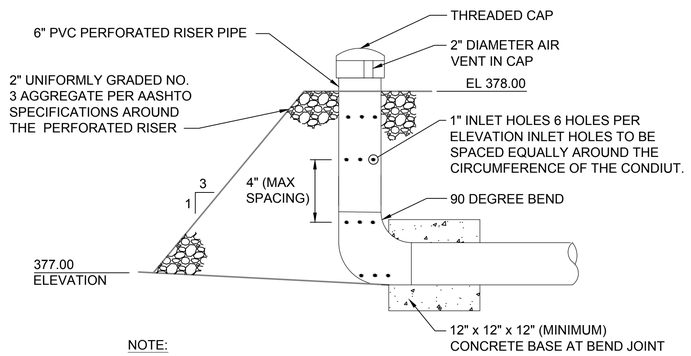


FOREBAY / SAND FILTER SCHEMATIC SECTION — 3 / C104
NOT TO SCALE



SIDE VIEW

PIPE COLLAR — 4 / C104
NOT TO SCALE



NOTE:

1. PERFORATIONS SHALL BE MADE IN THE 90 DEGREE BEND TO ASSURE THE DETENTION AREA COMPLETELY DRAINS TO THE SAND FILTER AREA.
2. POSITIVE DRAINAGE IS TO BE MAINTAINED FROM THE FOREBAY TO THE SAND FILTER AREA.

PERFORATED STAND PIPE — 5 / C509
NOT TO SCALE

This document has been digitally sealed.
Oct 5 2015

FOR PERMITTING PURPOSES ONLY NOT FOR CONSTRUCTION

NO.	REVISION	DATE	DRWN	CHKD	APPRV
1	ISSUED FOR PERMITTING	10/1/15	FP	RLR	BSS

THE NORTHERN PASS
Transmission Business

DEERFIELD SUBSTATION
CONSTRUCTION DETAILS

DATE: 10/1/2015
SCALE: NTS

DES: LRM | CHK: RLR
DRW: FP | APR: BSS

TOWN: DEERFIELD, NH
TRANSMISSION LINE:
MILE NO:
SHEET 19 OF 19
NPTT619-C509
REVISION: 11/10/2013

\\BMCD\DFS\CLIENTS\TND\NUSC\58466_NPT\DESIGN\SUBSTATION\600-DEERFIELD\CADD\CIVIL-SITE\NPTT619-C509.DWG 9/30/2015 9:01 PM RLREED